Nakamichi

Service Manual

Nakamichi
BX-300
BX-300E

Discrete Head Cassette Deck

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1. GENERAL

1.1. Voltage Selector

Voltage selector is installed on the rear panel for Other version of the Nakamichi BX-300. This voltage selector can select either 120 V or 220—240 V at customer's disposal.

1.2. Packing Materials and Owner's Manual

Part No.	Description	Q'ty
0F03812A	Carton Box BX-300 (U.S.A., Canada, Australia & Others)	1
0F03821A	Carton Box BX-300 (Japan)	1
0F03813A	Carton Box BX-300E	1
0F03674C	Packing	2
DA03800A	Extension Cord	1
0D04450A	Owner's Manual BX-300 (U.S.A., Canada & Australia)	1
0D04451A	Owner's Manual BX-300 (Japan)	1
DA03801A	Owner's Manual BX-300E & BX-300 (Others)	1

2. TEST TAPES AND GAUGES

(1) 400 Hz Level Tape (DA09005B)
(2) 1 kHz Track Alignment B Tape (DA09087B)
(3) 10 kHz PB Frequency Response Tape (DA09003B)
(4) 15 kHz PB Frequency Response Tape (DA09002B)
(5) 20 kHz PB Frequency Response Tape (DA09001B)
(6) 15 kHz Azimuth Tape (DA09004B)
(7) 3 kHz Speed and Wow/Flutter Tape (DA09006C)
(8) Tape Travelling Cassette (DA09071A)
(9) Reference EXII Tape (DA09066B)
(10) Reference SX Tape (DA09025B)
(11) Reference SX-E Tape (DA09086A)
(12) Reference ZX Tape (DA09037B)
(13) EH Tilt Check Gauge S (DA09088A)
(14) Stroke Check Gauge S (DA09090A)
(15) Tape Guide Height Check Gauge S (DA09091A)
(16) Tilt Check Gauge S (DA09039B)

3. MECHANICAL ADJUSTMENT

3.1. Record Head and Playback Head Tilt Adjustment
Remove the Cover Plate Ass'y by loosening two screws.
Refer to Fig. 3.1.

(1) Remove the pad lifter from the playback head.
(2) Load a Tilt Check Gauge S in the cassette deck.
(3) Clip the grounding terminal of the Tilt Check Gauge with one end of the cord with clip, and the chassis of the cassette deck with the other end.
(4) Remove both of the Height Gears.
(5) Set the cassette deck in Play mode. Check to insure whether the Beacons Playback Head "Upper" or "Lower" and Record Head "Upper" or "Lower" are illuminating. In order not to give damages onto the head surfaces, push both of slide knobs of the Gauge to away from the heads, then return them to the original place to be in contact with record head and playback head surfaces after Play mode is securely locked.
(6) Beacon Playback Head "Lower" will light on when height adjustment screw (PH) turned counterclockwise but Playback Head "Upper" when clockwise. Adjust so that both "Upper" and "Lower" will light on even when you move the slide knob away from the heads and then return it to the original place.
(7) Same procedures will apply to the Beacons Record Head "Upper" and "Lower", except for the height adjustment screw (RH).
(8) Set the cassette deck in Stop mode and fit both of the serrated Height Gears. Then set the cassette deck again in Play mode and insure all of the 4 Beacons are illuminating. If not, (4) through (7) will have to be repeated till satisfactory results are obtained.
(9) Mount the pad lifter on the playback head.

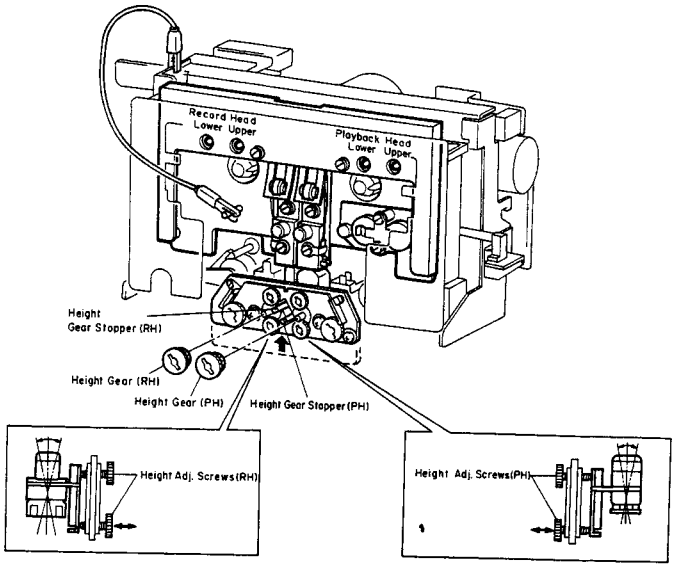


Fig. 3.1

3.2. Head Base Stroke Check
Remove the Cover Plate Ass'y.
Refer to Fig. 3.2.
Note: Before you conduct this adjustment, adjust with a "Tilt Check Gauge S" to insure freedom from tilt on the playback head and record head.

(1) Load a Stroke Check Gauge S in the cassette deck.
(2) Move Record Head Indicator and Playback Head Indicator to the direction of arrow mark "A" with your finger tip and then set the cassette deck in Play mode.
Then slowly release the Indicators and insure whether each of the Indicators is in contact with record and playback heads.
(3) Check to insure whether the line "P" on the Playback Head Indicator meets the central line on the Indicator Plate.
(4) Check to insure whether the line "P" on the Playback Head Indicator locates between the 2 lines on the Record Head Indicator, thus check can be made on record head stroke.

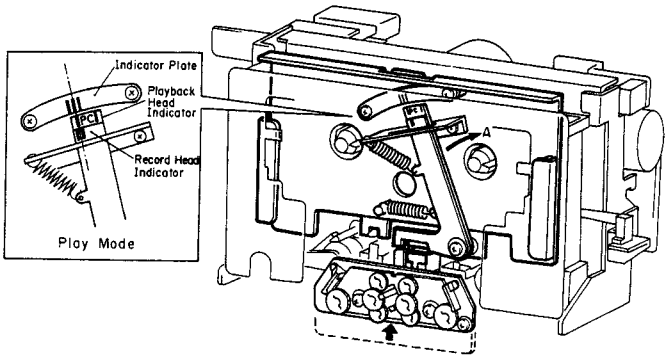


Fig. 3.2

3.3. Erase Head Stroke Adjustment and Tape Guide Height Check
Remove the Head Mount Base Ass'y and the Cover Plate Ass'y.
Refer to Fig. 3.3.

(1) **Erase Head Stroke Adjustment**
(a) Load a Tape Guide Height Check Gauge S in the cassette deck.
(b) Set the cassette deck in Play mode, thus check can be made on erase head stroke through the EH Stroke Indicator.
(c) Check to insure whether the erase head surface is aligned with red line on the EH Stroke Indicator. If not, adjust the erase head stroke by loosening screw A that assembles erase head with erase head plate.
(d) After completion of adjustment, screw A shall be locked with lock tight paint.

(2) **Supply Tape Guide Height Check**
(a) Load a Tape Guide Height Check Gauge S in the cassette deck.
(b) Set the cassette deck in Play mode.
(c) Slide the Supply Tape Guide Check Bar down against the supply tape guide, and check to insure that the Supply Tape Guide Check Bar is accepted by the supply tape guide.

(3) **Take-up Tape Guide Height Check**
(a) Load a Tape Guide Height Check Gauge S in the cassette deck.
(b) Set the cassette deck in Play mode.
(c) Slide the Take-up Tape Guide Check Bar down against the take-up tape guide, and check to insure that the Take-up Tape Guide Check Bar is accepted by the take-up tape guide.

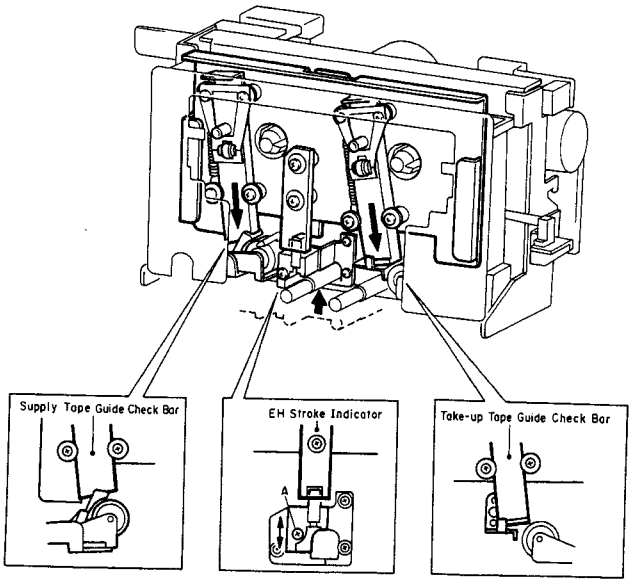


Fig. 3.3

3.4. Erase Head Height and Tilt Adjustment

Refer to Fig. 3.4.

(1) Remove the Cassette Case Ass'y, Head Mount Base Ass'y and Cover Plate Ass'y.
(2) Load an EH Tilt Check Gauge S in the cassette deck.
(3) Set the cassette deck in Stop mode.
(4) Check to insure whether one of the 3 Beacons is illuminating. Look down the mirror and slowly turn the Screw "Height" counterclockwise (or clockwise) so that the two horizontal lines on the mirror will become superposed on the line (in different color) of the erase head, and check to insure whether the first Beacon is illuminating.
(5) Turn Screw "Tilt" counterclockwise (or clockwise) to light on the second Beacon. Excessive turning will cause the first Beacon to light off. Adjustments of Screw "Tilt" will therefore be conducted till both of the first and the second Beacons illuminate.
(6) Turn Screw "Azimuth" counterclockwise (or clockwise) to light on the third Beacon. Excessive turning will cause either the first or the second Beacon to light off, and therefore adjust Screw "Azimuth" until all of the 3 Beacons illuminate.
(7) Check to insure whether the horizontal line on the mirror corresponds to that on the erase head. If not, (4) through (7) will have to be repeated till satisfactory results are obtained.
(8) After completion of adjustment, 3 pcs. of screws shall be locked with lock tight paint.

Note: Before use of this gauge, check to insure freedom from dust or dirts, or overflow in the groove of the erase head surface.

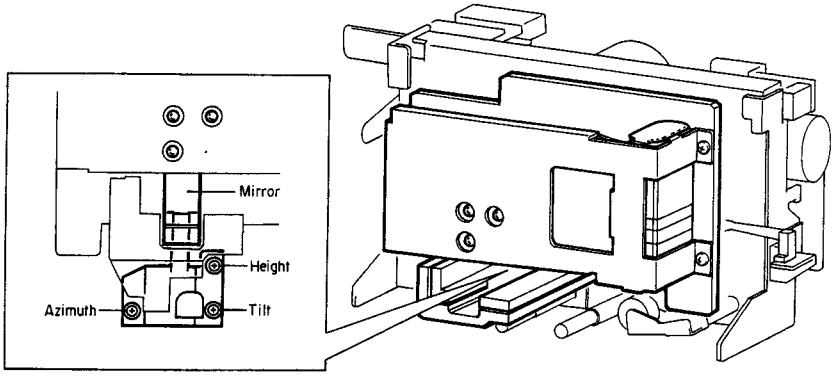


Fig. 3.4

3.5. Playback Head and Record Head Height Adjustment and Azimuth Alignment

Refer to Fig. 3.5.

(1) **Playback Head Height Adjustment and Azimuth Alignment**
(a) Set the Monitor switch to Tape, then connect a VTVM to the Output Jacks.
(b) Load a 1 kHz Track Alignment Tape, then set the cassette deck in Play mode.
(c) Turn the PH Height Gear until the outputs of both channels become minimum.
(d) Load a 15 kHz Azimuth Tape, then set the cassette deck in Play mode.
(e) Turn the PH Azimuth Alignment Screw until the outputs of both channels become maximum.
(f) Repeat above steps (b) through (e) one or two times to obtain optimum performance.

(2) **Record Head Height Adjustment and Azimuth Alignment**
(a) Set the cassette deck in Stop mode.
(b) Set the Monitor switch to Tape, Eq. switch to 70 μs and Tape Selector switch to ZX.
(c) Load a reference ZX tape and connect a VTVM to Output Jacks.
(d) Feed in 400 Hz (0 dB) to the Input Jacks.
(e) Set the cassette deck in Record and Play mode and turn the RH Height Gear until the outputs of both channels become maximum.
(f) Feed in 15 kHz (—20 dB) to the Input Jacks and turn the RH Azimuth Alignment Screw until the outputs of both channels become maximum.
(g) Repeat (d) to (f) one or two times to obtain optimum performance.

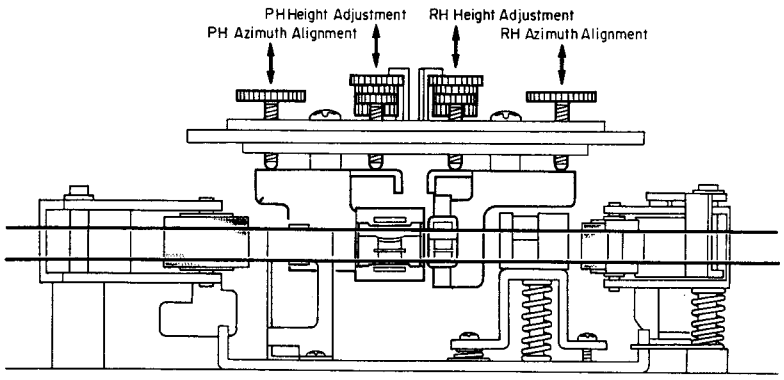


Fig. 3.5

3.6. Pressure Adjustment of Take-up Pressure Roller
Refer to Fig. 3.6.
(1) Set the cassette deck in Play mode.
(2) Measure the torque of the Take-up Pressure Roller and check whether the torque is in a range of 320 ±50 g-cm.
(3) If torque is out of the range, correct it by changing the installation point of the Pressure Roller Spring.

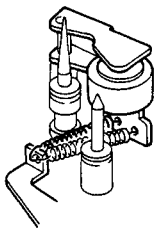


Fig. 3.6

3.7. Tape Travelling Check
Load and playback a Tape Travelling Cassette and check the following:
(1) Tape is in contact with heads sufficiently.
(2) Tape waving is small on the heads and pressure rollers.
(3) Tape is free from waving or slippage from the tape guides.

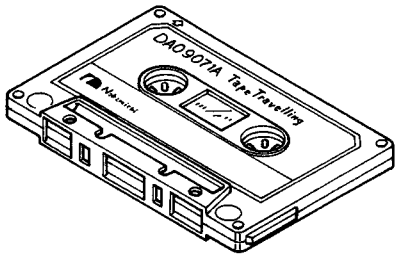


Fig. 3.7

3.8. Eject Damper Adjustment
Refer to Fig. 3.8. Load a cassette tape, and with opening the Cassette Case by pressing the Eject button and closing it by hand, adjust the speed of damper action by the Adjustment Screw.

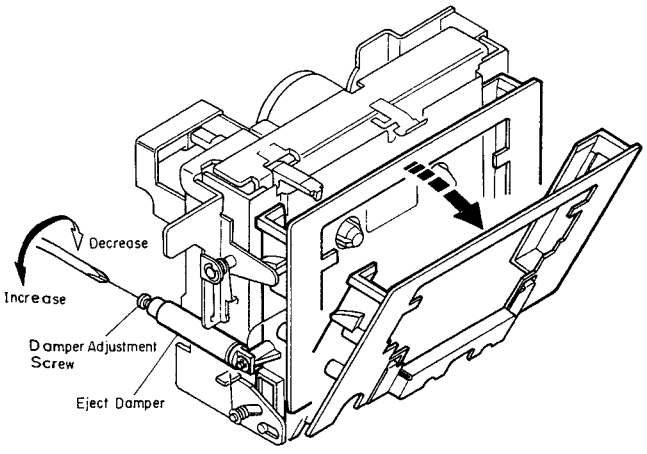


Fig. 3.8

3.9. Reel Motor Speed Adjustment in Play Mode
(1) To warm-up the cassette deck, load a C-60 cassette tape and set the cassette deck in Play mode.
(2) After more than four minutes, load a torque meter TW-211 (made by Sony) and set the cassette deck in Play mode.
(3) Adjust VR601 on the Main P.C.B. Ass'y to obtain exactly 50 g-cm on the torque meter.

3.10. Tape Speed Adjustment
Refer to Fig. 3.9.
(1) Set the Pitch Control Knob on the Front Panel to its mechanical center position.
(2) Connect a frequency counter to the Output Jacks.
(3) Load a 3 kHz Speed and Wow/Flutter Tape and play it back.
(4) Adjust VR101 on the Motor P.C.B. Ass'y to obtain 3,000 Hz on the frequency counter.
CCW: Motor drives fast.
CW: Motor drives slowly.

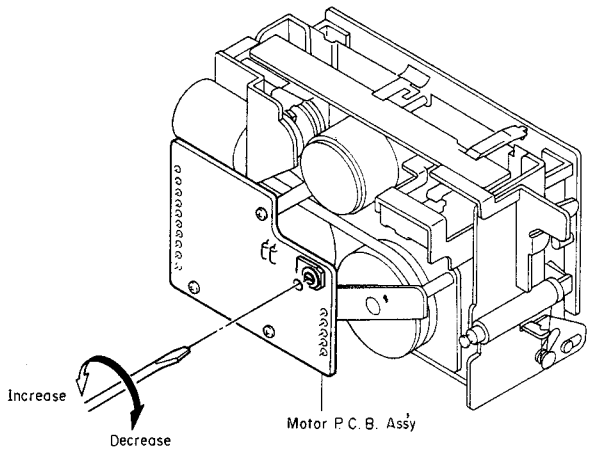


Fig. 3.9

3.11. Lubrication
The tape transport is of a lubrication-free type mechanism. When the following parts are replaced, apply the specified lubricant.
(1) Molykote (R) Grease (X5-6020)
Cam Motor Pulley
Thrust portion on the Capstan Shaft
(2) FLOIL GB-TS-1
Washer between Reel Hub Ass'y and Back Tension Spring
(3) Diamond Oil (EP56)
Reel Hub Shaft
(4) Anderol 456
Capstan Shaft
Note: We suggest that you use the above specified lubricant or equivalent type.
The company dealing in the above lubricant is as follows:
(a) Molykote (R) Grease (X5-6020)
Dowcorning Co., Ltd., 1-15-1 Nishishinbashi, Minato-ku, Tokyo, Japan
(b) FLOIL GB-TS-1
Kanto Chemicals Co., Ltd., 2-7 Kanda Sakuma-cho, Chiyoda-ku, Tokyo, Japan
(c) Diamond Oil (EP-56)
Mitsubishi Oil Co., Ltd., 1-2-4 Toranomon, Minato-ku, Tokyo, Japan
(d) Anderol 456
Toyo Kokusai Oil Co., Ltd., 3-3-5 Hatchobori, Chuo-ku, Tokyo, Japan

4. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

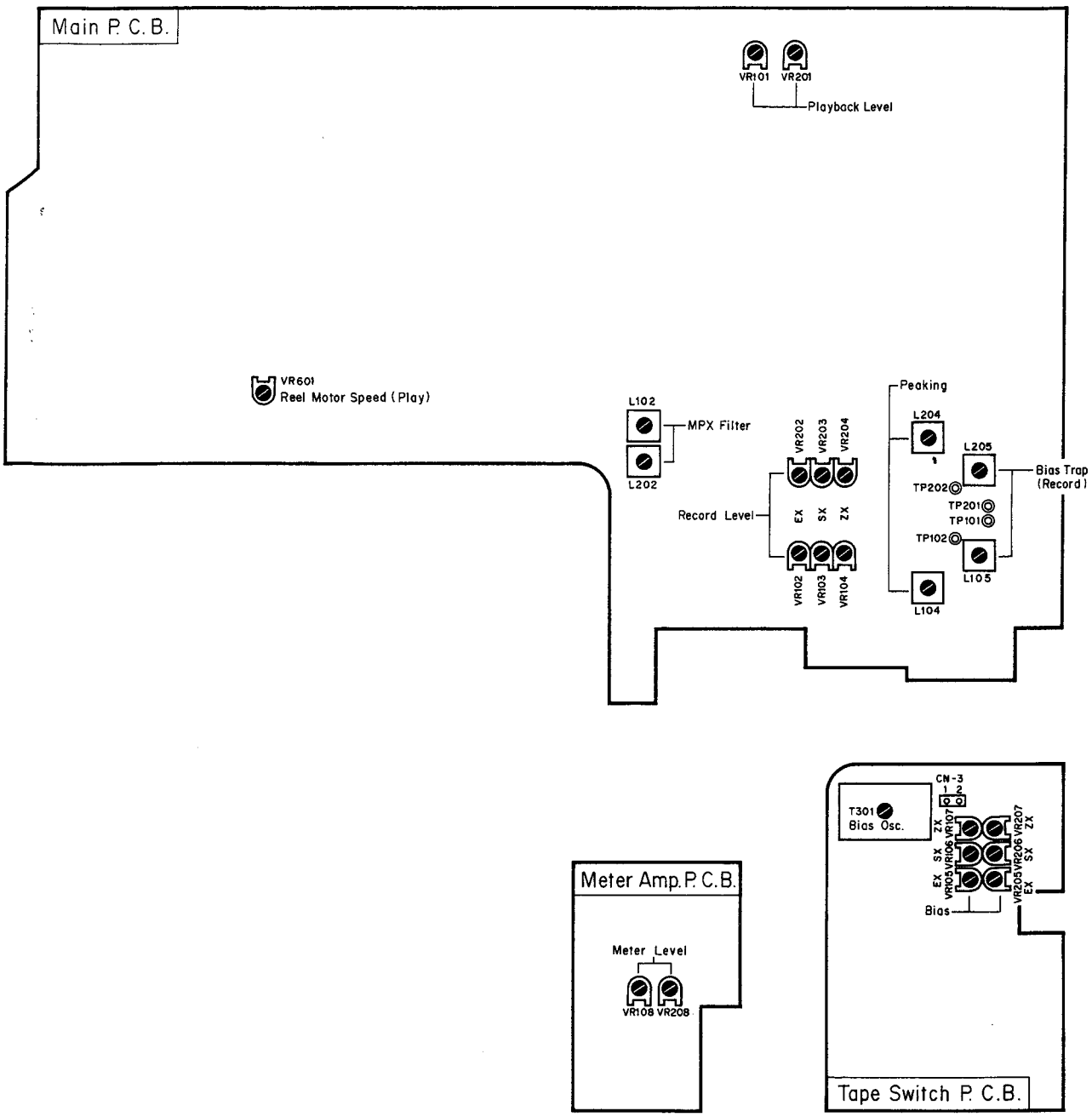


Fig. 4

5. ELECTRICAL ADJUSTMENTS

Notes: 1. Electrical adjustment should be performed after mechanical adjustment is completed.
2. Before adjustment, set the Bias Tune control and the Pitch control on the Front Panel to their mechanical center positions.

5.1. Adjustment Instructions

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST-MENT	REMARKS
1	Tape Speed Adjustment	3 kHz Speed and Wow/Flutter Tape	Frequency Counter to Output Jacks	Playback Eq. SW — 70 μs	Motor P.C.B. VR101	1. Set the Pitch Control to its mechanical center position. 2. Adjust VR101 to obtain 3 kHz ±0.5% on the frequency counter.
2	Meter Level Calibration	400 Hz to Input Jacks	VTVM to Output Jacks	Monitor SW — Source	Meter Amp. P.C.B. VR108,VR208	1. Set the Output Level control to max. 2. Feed in 400 Hz, then adjust the Input Level controls to obtain 1.0 V —4 dB on the VTVM. 3. Adjust VR108 (VR208) so that the 0 dB segment of the level meter starts to illuminate. 4. Adjust the Input Level control to obtain 1.0 V +1 dB on the VTVM and check to insure that the upper segment of the 5. 0 dB segment starts to illuminate.
3	MPX Filter Adjustment	19 kHz ±100 Hz to Input Jacks	VTVM to Output Jacks	Monitor SW — Source Dolby NR SW — OFF MPX SW — ON	Main P.C.B. L102,L202	1. Set the Output Level control to max. 2. Adjust the Input Level controls to obtain 1 V on the VTVM. 3. Set the MPX Filter switch to ON, then adjust L102 (L202) to obtain the minimum reading on the VTVM (the minimum reading will be less than —30 dB).
4	Playback Head Track Alignment	1 kHz Track Alignment B Tape	VTVM to Output Jacks	Playback Monitor SW — Tape Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OFF	PH Height Gear	Adjust the PH Height Gear to obtain minimum readings for both channels on the VTVM. Refer to "Playback Head Height Adjustment and Azimuth Alignment" in item 3.5.
5	Playback Head Azimuth Alignment	15 kHz Azimuth Tape	VTVM to Output Jacks	Playback Monitor SW — Tape Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OFF	Playback Head Azimuth Alignment Screw	Adjust the Playback Head Azimuth Alignment Screw to obtain maximum readings of both channels on the VTVM. Refer to "Playback Head Height Adjustment and Azimuth Alignment" in item 3.5. Note: Repeat steps 4 and 5 one or two times to obtain optimum performance.
6	Playback Level Calibration	400 Hz Level Tape	VTVM to Output Jacks	Same as above	Main P.C.B. VR101,VR201	1. Set the Output Level control to max. 2. Adjust VR101 (VR201) to obtain 1.0 V on the VTVM.
7	Playback Frequency Response Adjustment	400 Hz Level Tape 10 kHz PB Frequency Response Tape 15 kHz PB Frequency Response Tape 20 kHz PB Frequency Response Tape	VTVM to Output Jacks	Playback Monitor SW — Tape Tape SW — SX Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OFF	Main P.C.B. R109,R209 R110,R210	1. Load a 400 Hz level tape and play it back. Adjust the Output Level control to a certain level (0 dB for example). 2. Load 10 kHz, 15 kHz and 20 kHz PB frequency response tapes and adjust the playback head azimuth to obtain maximum levels on the VTVM with each tape. Short R109 (R209) and/or R110 (R210) to obtain the following levels against the level for the 400 Hz level tape. 10 kHz: —20 dB —2 dB to +2 dB 15 kHz: —20 dB —2 dB to +3 dB 20 kHz: —20 dB —2 dB to +4 dB Refer to "Playback Frequency Response Adjustment" in item 5.2. 3. Conduct step 5 "Playback Head Azimuth Alignment".
8	Bias Oscillation Frequency and Erase Current Adjustment		VTVM across the additional 0.1 Ω resistor and Frequency Counter to CN3-1 on Tape Switch P.C.B.	Record, Pause Monitor SW — Source Tape SW — ZX Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OFF	Tape Switch P.C.B. T301 R301,R302	1. Connect an additional 0.1 Ω resistor in series to the Erase Head, then connect a VTVM across the resistor. 2. Adjust T301 to obtain 105 kHz on the frequency counter. 3. Check the erase current by the VTVM. Erase current will be in a range of 310 mA to 400 mA (typically approx. 350 mA). If erase current is not sufficient, increase it by shoring either R301 or R302. 4. After completion of the erase current adjustment, re-check the bias oscillation frequency. 5. Remove the additional 0.1 Ω resistor.
9	Record Amplifier Equalizer Adjustment	23 kHz (—20 dB) to Input Jacks	VTVM to TP101, TP201 on Main P.C.B.	Same as above	Main P.C.B. L104,L204	1. Remove the bias-cut-jumper from the dip side of the Tape Switch P.C.B. Ass'y. 2. Adjust L104 (L204) to obtain approx. +16 dB at 23 kHz on the VTVM. 3. Re-solder the bias-cut-jumper.
10	Bias Trap Adjustment (Record Amp.)	Remove input signals	VTVM to TP102, TP202 on Main P.C.B.	Same as above	Main P.C.B. L105,L205	Adjust L105 (L205) to obtain minimum reading on the VTVM.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST-MENT	REMARKS
11	Record Head Height Adjustment	400 Hz (0 dB) to Input Jacks	VTVM to Output Jacks	Record, Playback Monitor SW — Tape Tape SW — ZX Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OFF	RH Height Gear	Adjust the RH Height Gear to obtain maximum readings of both channels on the VTVM. Refer to "Record Head Height Adjustment and Azimuth Alignment" in item 3.5.
12	Record Head Azimuth Alignment	15 kHz (—20 dB) to Input Jacks	VTVM to Output Jacks	Same as above	Record Head Azimuth Alignment Screw	Adjust the Record Head Azimuth Alignment Screw to obtain maximum readings of both channels on the VTVM. Refer to "Record Head Height Adjustment and Azimuth Alignment" in item 3.5. Note: Repeat steps 11 and 12 one or two times to obtain optimum performance.
13	Record Level Calibration and Recording Bias Current Adjustment	400 Hz and 15 kHz and 10 kHz/20 kHz (—20 dB) to Input Jacks	VTVM and Distortion Meter to Output Jacks	Record, Playback Tone — 400 Hz/ 15 kHz Monitor SW — Source/ Tape Tape SW — ZX/SX/ EX Eq. SW — 70 μs (ZX/SX) 120 μs (EX) Dolby NR SW — C-Type/B-Type/ OFF MPX SW — OFF	Main P.C.B. (Level) ZX: VR104,VR204 SX: VR103,VR203 EX: VR102,VR202 Tape Switch P.C.B. (Bias) ZX: VR107,VR207 SX: VR106,VR206 EX: VR105,VR205	Adjustment should be made in the order of ZX, SX and EX. 1. Set the Monitor switch to Source and Dolby NR switch to C-Type. 2. Feed in 400 Hz, then set the Input Level controls to obtain 0 dB (1 V) on the VTVM. 3. Set the Monitor switch to Tape. 4. Load a reference ZX tape, reference SX or SX-E (for BX-300E) tape and reference EXII tape. 5. Adjust Record Cal! VR104 (VR204) for ZX, VR103 (VR203) for SX and VR102 (VR202) for EX to center position. 6. Feed in 400 Hz (0 dB), then record and play it back. Adjust Bias VR107 (VR207) for ZX, VR106 (VR206) for SX and VR105 (VR205) for EX to obtain the maximum readings on the VTVM. 7. Feed in 15 kHz (—20 dB), then adjust Bias VR107 (VR207), VR106 (VR206) and VR105 (VR205) to obtain the same readings as source monitor levels on the VTVM. 8. Feed in 400 Hz (0 dB), then adjust Record Cal. VR104 (VR204), VR103 (VR203) and VR102 (VR202) to obtain 0 dB on the VTVM. 9. Repeat above 7 and 8 two or three times to obtain optimum performance. 10. Set the Dolby NR switch to OFF. 11. Feed in 10 kHz (—20 dB) and 20 kHz (—20 dB), then record and play them back. Check to insure that the levels are within —20 dB ±3 dB against the levels in Dolby NR C-Type. 12. Set the Dolby NR switch to B-Type. 13. Feed in 10 kHz (—20 dB) and 20 kHz (—20 dB), then record and play them back. Check to insure that the levels are within —20 dB ±3 dB against the levels in Dolby NR OFF. 14. Check to insure whether the total harmonic distortion is less than 0.9% for ZX tape and 1.0% for SX/SX-E and EXII tapes. 15. If above is not sufficient, repeat 6 to 14 till satisfactory results are obtained.
14	Overall Frequency Response Adjustment	400 Hz (0 dB) and 20 Hz to 20 kHz (—20 dB) to Input Jacks	VTVM to Output Jacks	Record, Playback Monitor SW — Source/ Tape Tape SW — ZX/SX/EX Eq. SW — 70 μs (ZX/SX) 120 μs (EX) Dolby NR SW — OFF MPX SW — OFF	Main P.C.B. L104,L204	1. Set the Monitor switch to Source. 2. Feed in 400 Hz (0 dB) and adjust the Input Level controls to obtain 0 dB (1 V) on the VTVM. 3. Switch the Generator output level to —20 dB. 4. Set the Monitor switch to Tape, then record and play it back. 5. Feed in 20 Hz to 20 kHz (—20 dB), and check to insure whether the output levels are within —20 dB ±3 dB. 6. If above is not sufficient, adjust L104 (L204) to obtain approx. —20 dB on the VTVM at 20 kHz. 7. Conduct step 13 "Record Level Calibration and Recording Bias Current Adjustment". 8. If above is not sufficient, precise re-adjustment of step 7 "Playback Frequency Response", replacement of Playback Head or Record Head, check on item 3.7 "Tape Travelling Check" will be required.

5.2. Playback Frequency Response Adjustment

Figs. 5.1 and 5.2 show the playback amp. circuit for adjusment and the playback equalization curve.

This adjustment will be required if playback level is not sufficient during playing back a 20 kHz PB frequency response tape.

The peaking portion of the equalization curve compensates the gap loss of the playback head. Peaking level is varied by the short circuit of R109 (R209) and/or R110 (R210) on the Main P.C.B. Ass'y.

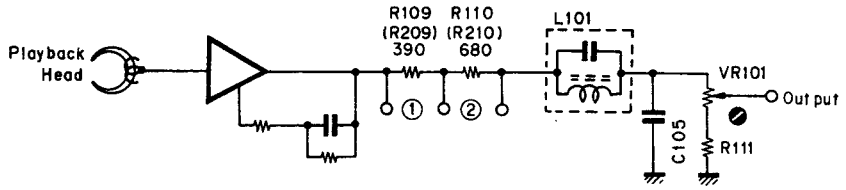


Fig. 5.1

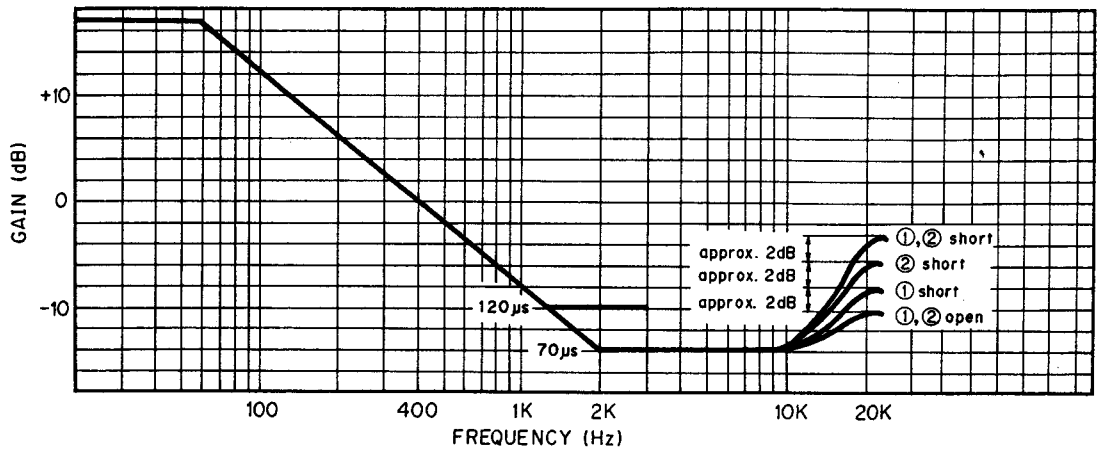


Fig. 5.2

6. MECHANISM ASS'Y AND PARTS LIST

6.1. Synthesis

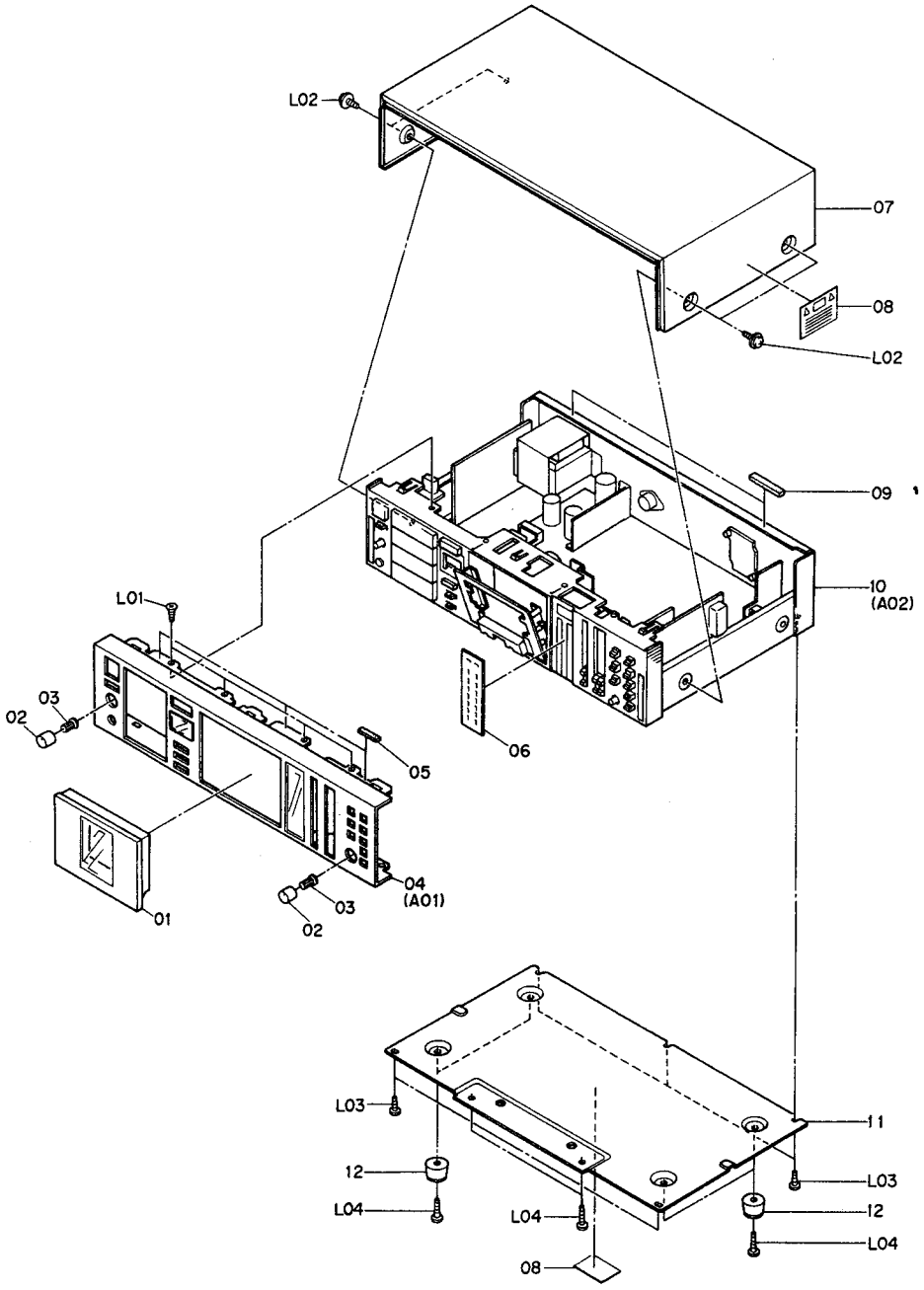


Fig. 6.1

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
		Synthesis		05	0J04628A	Top Cover Cushion (Front)	3
		Serial No.: A12701001 -		06	0H04427A	Meter Scale	1
				07	0H04156B	Top Cover	1
01	HA04645A	Cassette Case Cover Ass'y BX-300 (U.S.A., Canada, Australia & Others) & BX-303E	1	08	0M04377B	Caution Label	2
				09	0J04629A	Top Cover Cushion (Back)	2
				10	—	Synthesis Mechanism Ass'y	1
				11	0J04762A	Bottom Cover	1
	HA04644A	Cassette Case Cover Ass'y BX-300 (Japan)	1	12	0J03564A	Leg TH	4
				L01	0E03054A	BT 3x8 ⊕ Countersunk	4
02	0H04342A	Volume Knob	2	L02	0E03032A	BT 4x8 ⊕ Pan Washer-faced	4
03	0H03737A	Volume Knob Base	2	L03	0E00868A	BT 3x8 ⊕ Binding	5
04	HA04662A	Front Panel Ass'y BX-300E	1	L04	0E00865A	BT 3x10 ⊕ Binding	4
	HA04660A	Front Panel Ass'y BX-300 (U.S.A., Canada, Australia & Others)	1				
	HA04661A	Front Panel Ass'y BX-300 (Japan)	1				

6.2 Front Panel Ass'y (A01)

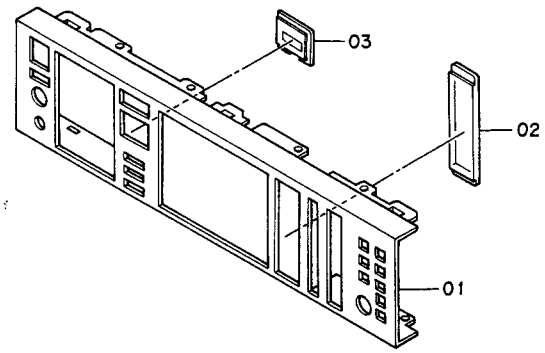


Fig. 6.2

Schematic Ref. No.	Part No.	Description	Q'ty
A01	HA04660A	Front Panel Ass'y BX-300 (U.S.A., Canada, Australia & Others)	1
	HA04661A	Front Panel Ass'y BX-300 (Japan)	1
	HA04662A	Front Panel Ass'y BX-300E Serial No.: A12701001 -	1
01	0H04420A	Front Panel BX-300 (U.S.A., Canada, Australia & Others)	1
	0H04447A	Front Panel BX-300 (Japan)	1
	0H04421A	Front Panel BX-300E	1
02	0H04251C	Meter Cover	1
03	0H04241A	Counter Cover	1

6.3 Synthesis Mechanism Ass'y (A02)

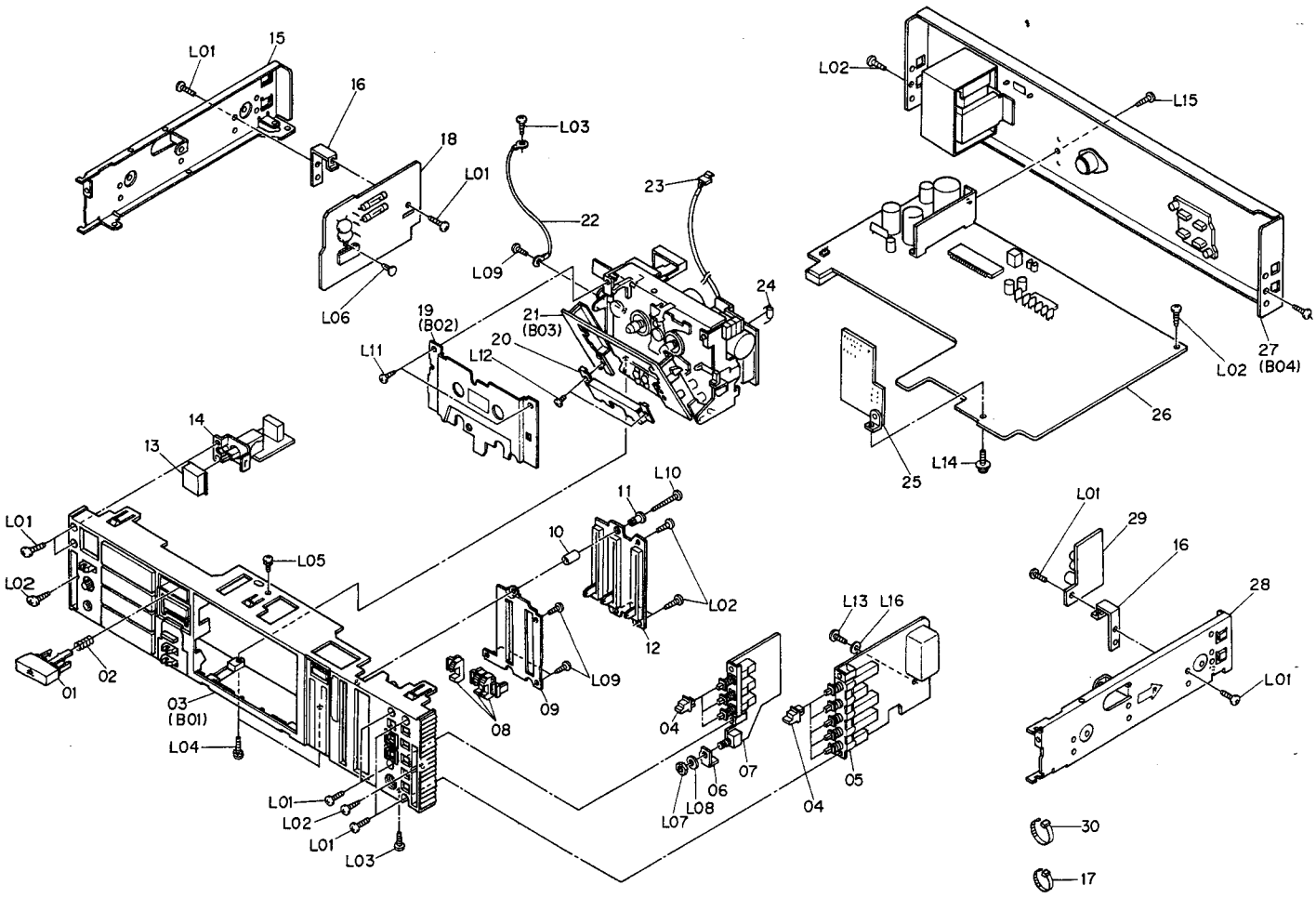


Fig. 6.3

Schematic Ref. No.	Part No.	Description	Q'ty
A02	—	**Synthesis Mechanism Ass'y** Serial No.: A12701001 -	
01	HA04570A	Eject Button Ass'y	1
02	0J04765A	Spring	1
03	HA04632A	Front Chassis Ass'y	1
04	0H04248A	Push Switch Button	8
05	BA05366A	Tape Switch P.C.B. Ass'y	1
06	0J04768A	Earth Plate	1
07	BA05365A	Dolby NR Switch P.C.B. Ass'y	1
08	0H04247B	Slide Volume Knob	3
09	0H04286B	Slide Volume Plate	1
10	0J04703A	P.C.B. Spacer A	1
11	0J04704A	P.C.B. Spacer B	1
12	BA05392A	Volume P.C.B. Ass'y	1
13	0H04243A	Power Switch Button	1
14	BA05389A	Power Switch P.C.B. Ass'y BX-300 (Australia & Others) & BX-300E	1
	BA05388A	Power Switch P.C.B. Ass'y BX-300 (U.S.A. & Canada)	1
	BA05387A	Power Switch P.C.B. Ass'y BX-300 (Japan)	1
15	0J04841A	Side Chassis (L)	1
16	0J04839A	P.C.B. Holder (Serial No.: A12702001 -)	2
17	0B08515A	Insu-Lock	13
18	BA05428A	Fuse P.C.B. Ass'y (Not including fuses)	1
19	HA04631A	Cover Plate Ass'y	1
20	0H04415A	Head Mount Cover	1
21	CA08650A	Mechanism Ass'y	1
22	BA05400A	Earth Wire Ass'y	1
23	0B82311A	3P-H Connector	1
24	0B09685A	Carbon Resistor 2.2K 1/6W J	1
25	BA05361A	Meter Amp. P.C.B. Ass'y	1
26	BA05353B	Main P.C.B. Ass'y BX-300 (Serial No.: A12702001 -)	1
	BA05353B-E	Main P.C.B. Ass'y BX-300E (Serial No.: A12702001 -)	1
	BA05353A	Main P.C.B. Ass'y BX-300 (Note 1) (Serial Nos.: A12701001 - 02000)	1
	BA05353A-E	Main P.C.B. Ass'y BX-300E (Note 1) (Serial Nos.: A12701001 - 02000)	1
27	HA04622A	Rear Panel Ass'y BX-300E (UK)	1
	HA04623A	Rear Panel Ass'y BX-300 (U.S.A. & Canada)	1
	HA04624A	Rear Panel Ass'y BX-300 (Japan)	1
	HA04625A	Rear Panel Ass'y BX-300 (Others)	1
	HA04626A	Rear Panel Ass'y BX-300 (Australia)	1
	HA04627A	Rear Panel Ass'y BX-300E (220V Class 2)	1
28	0J04773A	Side Chassis (R)	1
29	BA05499A	Input Amp. P.C.B. Ass'y (Serial No.: A12702001 -)	1
30	0B90012A	Insu-Lock 140mm	3
—	0B02240A	Fuse T1.25A BX-300E & BX-300 (Australia)	2
—	0M04391A	Fuse Label T1.25A BX-300E & BX-300 (Australia)	1
—	0B08349B	Fuse Clip BX-300E & BX-300 (Australia)	4
—	0B08962A	Fuse 2.5A BX-300 (U.S.A., Canada & Others)	2
—	0B08961A	Fuse 2.5A BX-300 (Japan)	2
—	0M04595A	Fuse Caution BX-300 (U.S.A. & Canada)	1
L01	0E00766A	M3x8 ⊕ Binding	10
L02	0E00868A	BT 3x8 ⊕ Binding	8
L03	0E00857A	BT 3x6 ⊕ Binding	2
L04	0E03074A	BT 2.6x8 ⊕ Binding with Toothed-lock Washer	2
L05	0E03212A	BT2.6x6 ⊕ Binding with Toothed-lock Washer	1
L06	0B08583A	Plastic Rivet	1
L07	—	Nut	(1)
L08	—	Washer	(1)
L09	0E03072A	M2.6x6 ⊕ Binding	4
L10	0E00835A	BT 3x25 ⊕ Pan	1
L11	0E00824A	BT 2.6x6 ⊕ Pan (Black Chromate)	2
L12	0E03202A	M2.6x3 ⊕ Binding (Black Chromate)	2
L13	0E03217A	BT 4x8 ⊕ Binding	1
L14	0E00607A	M3x8 ⊕ Pan (3A)	1
L15	0E00921A	BT 3x8 ⊕ Binding (Black Chromate)	1
L16	0E03238A	Fiber Washer 4x10x1	1
		Note 1: The old type Main P.C.B. Ass'y is not available as a spare part. If replacement is necessary, please order Input Amp. P.C.B. Ass'y (BA05499A) and P.C.B. Holder (0J04839A) (for mounting Input Amp. P.C.B. Ass'y) together with the new type Main P.C.B. Ass'y (BA05353B/BA05353B-E).	
B01	HA04632A	**Front Chassis Ass'y** Serial No.: A12701001 -	1
01	HA04615A	Front Chassis Sub Ass'y	1
02	0B08511A	Headphone Jack	1
03	0J04611A	Headphone Plate	1
04	BA05440A	Pitch Controller Ass'y	1
05	BA05390A	Control Switch P.C.B. Ass'y	1
06	0H04242A	Slide Switch Knob	3
07	BA05391A	Counter P.C.B. Ass'y	1
08	BA05399A	Indicator Ass'y	1
L01	0E00868A	BT 3x8 ⊕ Binding	5
L02	0E00857A	BT 3x6 ⊕ Binding	8

6.4. Front Chassis Ass'y (B01)

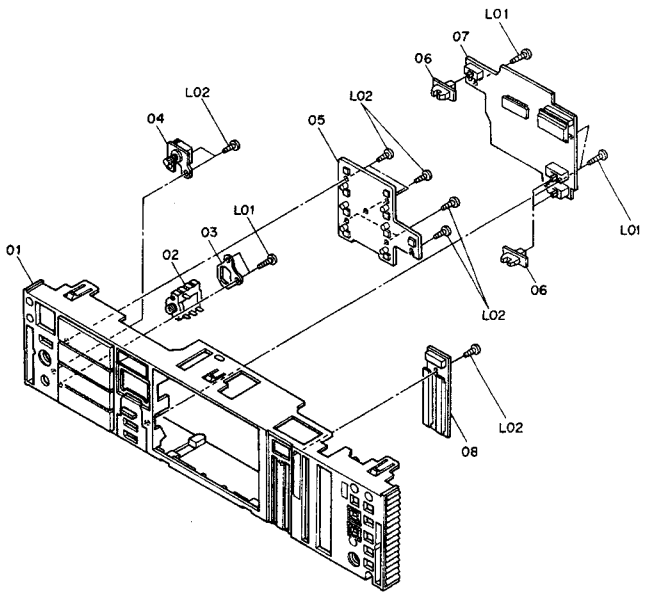


Fig. 6.4

6.5. Cover Plate Ass'y (B02)

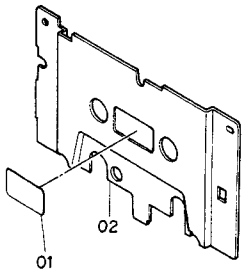


Fig. 6.5

Schematic Ref. No.	Part No.	Description	Q'ty
B02	**HA04631A**	**Cover Plate Ass'y** **Serial No.: A12701001 -**	**1**
01	0M04392A	Cassette Label Gold	1
02	0H04437B	Cover Plate	1
B03	**CA08650A**	**Mechanism Ass'y** **Serial No.: A12701001 -**	**1**
01	CA80206A	D.D. Motor Ass'y	1
02	0C80026A	Cam	1
03	0C80028A	Control Motor Holder	1
04	CA80007A	Control Motor Ass'y	1
05	CA80200A	Cassette Case Ass'y	1
06	0C08762A	Head Height Adjustment Gear	2
07	0C08761A	Head Height Adjustment Screw	4
08	0C08763A	Azimuth Alignment Screw	2
09	0C80605A	Wire Clamper	1
10	CA08637A	Head Mount Base Sub Ass'y	1
11	CA08659B	R-3L Record Head Ass'y	1
12	0C08776A	Head Plate Spring (L)	1
13	0C80606A	4P-H Connector	1
14	CA08658B	P2H-L Playback Head Ass'y	1
15	0C08775A	Head Plate Spring (R)	1
16	0C80607A	4P-H Connector	1
17	0C80003A	Head Base Hold Plate	1
18	0C80004A	Steel Ball 3mm	1
19	GA02201A	E-4F Erase Head	1
20	0C80608A	2P-H Connector	1
21	0C08768A	E.H. Hold Plate	1
22	0C08889A	E.H. Hold Plate Tapering Spring	2
23	0C08886A	E.H. Hold Plate Spring	1
24	0C08771A	Tape Guide Plate	1
25	CA08638A	Head Base Sub Ass'y	1
26	0C80007A	Steel Ball 2mm	3
27	CA80005A	T. Pressure Roller Arm Ass'y	1
28	0C80609A	T. Pressure Roller Arm Spring	1
29	0C80027A	Mode Switch	1
30	0C80010A	Cassette Case Holder R	1
31	0C80610A	Cassette Case Spring	1
32	0C80611A	Head Base Spring	1
33	CA80201A	T. Reel Hub Ass'y	1
34	0C80612A	Spring Holder	2
35	0C80613A	T. Reel Hub Spring	1
36	CA80202A	S. Reel Hub Ass'y	1
37	0C80614A	S. Reel Hub Spring	1
38	0C80615A	Pressure Roller Plate	1
39	CA80203A	S. Pressure Roller Arm Ass'y	1
40	0C80616A	S. Pressure Roller Arm Spring	1
41	0C80013A	Lock Lever Spring	1
42	0C80014A	Lock Lever Collar	1
43	0C80015A	Lock Lever	1
44	0C80617A	Back Tension Arm Spring	1
45	0C80618A	Back Tension Arm Collar	1
46	0C80619A	Back Tension Arm	1
47	0C80620A	Back Tension Pulley	1
48	0C80621A	Back Tension Belt	1
49	0C80021A	Eject Lever	1
50	0C80020A	Eject Lever Spring	1
51	0C80011A	Eject Sensor Holder	1
52	CA80006A	Pneumatic Damper Ass'y	1
53	0C80019A	Eject Spring	1
54	0C80018A	Cassette Case Holder L	1
55	0C80622A	Switch Hold Plate	1
56	0C80623A	Switch Plate	2
57	0C80624A	Switch Collar A	2
58	0C80626A	Leaf Switch	1
59	0C80625A	Switch Collar B	2
60	0C80017A	Record Protect Lever	1
61	0C80627A	Mechanism Chassis	1
62	0C80022A	Cassette Hold Spring	1
63	CA80011A	Shut-off P.C.B. Ass'y	1
64	0C80012A	Eject Sensor	1
65	CA80204A	Brake Ass'y	1
66	0C80628B	Brake Spring B	1
67	0C80630A	Brake Arm Collar	1
68	0C80629A	Brake Arm	1
69	0C80030A	Reel Motor Holder	1
70	CA80205A	Reel Motor Ass'y	1
71	0C80631A	5P-H Connector	1
72	0C80632A	9P-H Connector	1
73	0C80037A	Insu-Lock	3
74	0C80635A	Idler Pulley	1
—	0C80634A	Capstan Belt	1
L01	0E03044A	FT2.5x20 ⊕ Pan	1
L02	0E00976A	M2x5 ⊕ Pan	5
L03	0E00025A	Spring Washer 2mm	2
L04	0E00117A	Washer 2.2x4.3x0.4	5
L05	0E00866A	M2.6x4 ⊕ Binding	1
L06	0C08774A	Plate Washer L	1
L07	0C08773A	Plate Washer R	1
L08	0E03228A	FT3x4 ⊕ Pan	1
L09	0E03232A	M1.7x7 ⊕ Pan	1
L10	0E03222A	Washer 1.8x3.8x0.3	1
L11	0E00691A	M2x3 ⊕ Pan (Chromate)	2
L12	0E03234A	M2x3 ⊕ Pan (Nickel)	2
L13	0E00222A	E-Ring 2mm	2
L14	0E03035A	TP 2x3.2 Truss	1
L15	0E03049A	Washer 1.8x3.2x0.5	2
L16	0E03226A	Washer 2.1x4.5x0.1	3
L17	0E00224A	M2x3 Cup Point	1
L18	0E03043A	FT 2.5x10 ⊕ Pan	2
L19	0E03225A	Washer 1.8x3.2x0.5	1
L20	0E00181A	E-Ring 3mm	1
L21	0E03235A	Plastic Washer 2x5x0.25	1
L22	0E03052A	CS Stopper Ring 2.4mm	2
L23	0E03229A	FT 2.5x6 ⊕ Pan	13
L24	0E03236A	M2x5 ⊕ Pan (2A)	4
L25	0E03227A	Washer 2.7x5x0.5	2
L26	0E03231A	M2x30 ⊕ Pan	2
L27	0E03041A	FT 2.5x4 ⊕ Pan	2
L28	0E03237A	Nut Hex. M2.6	1
L29	0E03233A	Washer 2.6x8x1	1
L30	0E03230A	ST 2.6x12 ⊕ Pan	1
L31	0E03045A	M2.6x3 ⊕ Binding	2
L32	0E00694A	Nut Hex. M2	1
L33	0E03245A	Mylar Washer 1.3x3.3x0.3	1

6.6. Mechanism Ass'y (B03)

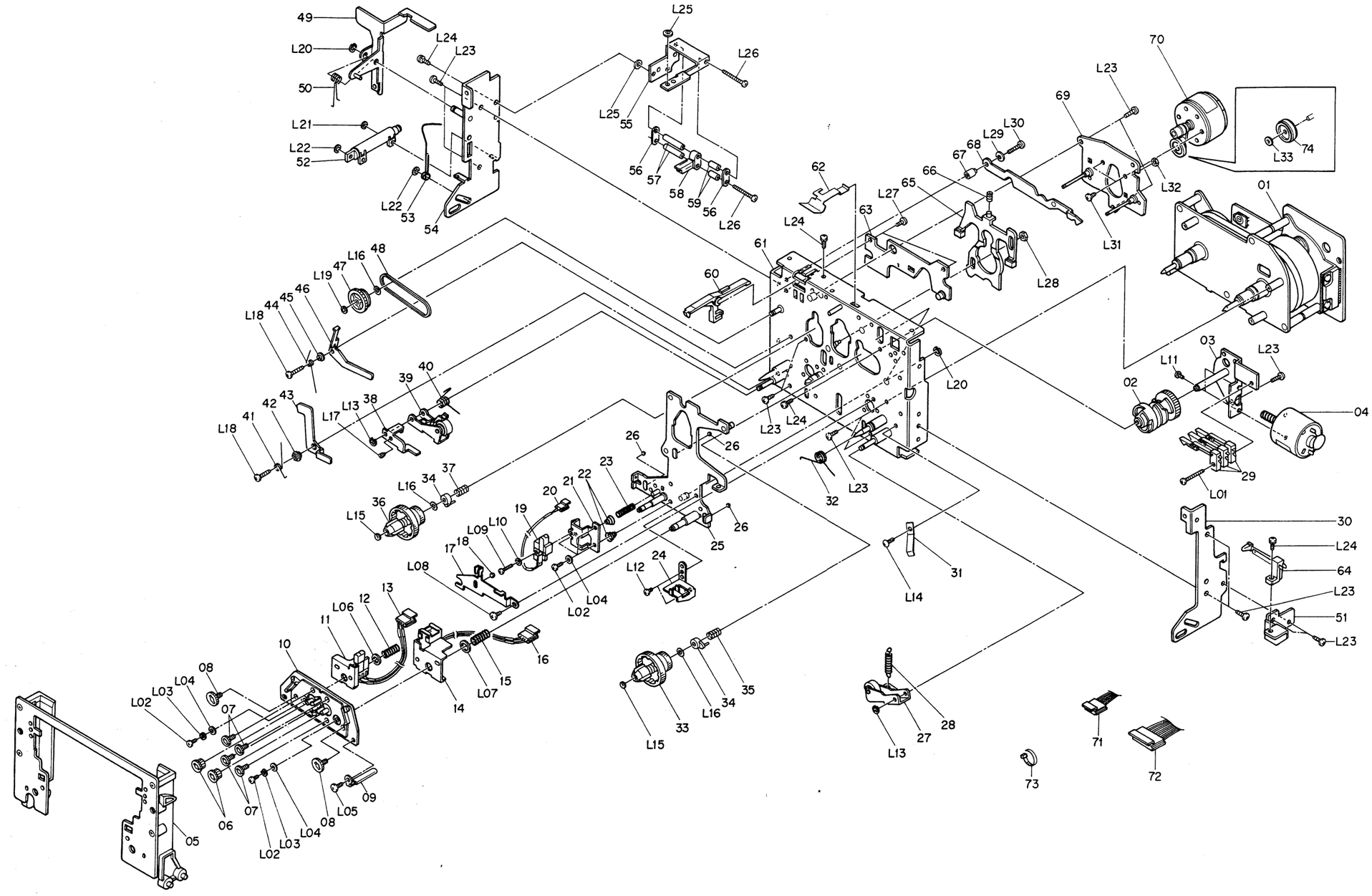


Fig. 6.6

6.7. Rear Panel Ass'y (B04)

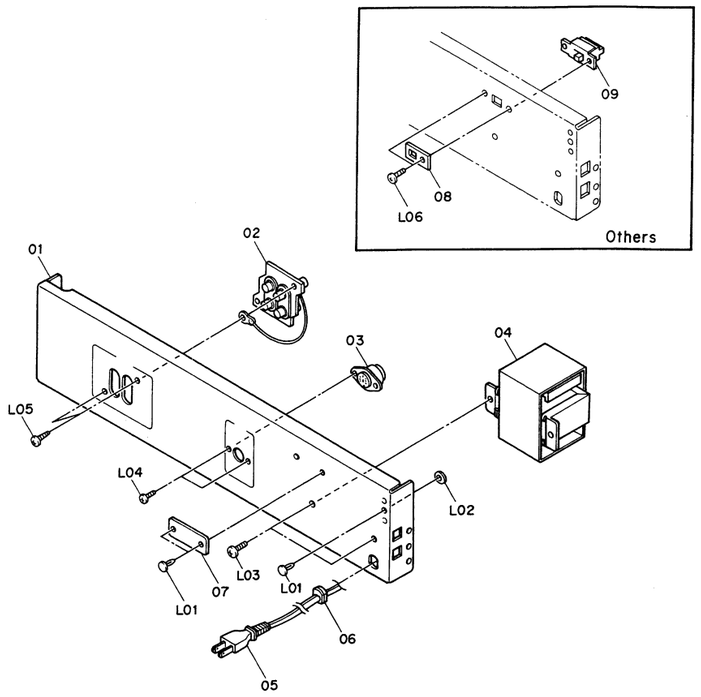


Fig. 6.7

Schematic Ref. No.	Part No.	Description	Q'ty
B04	HA04622A	Rear Panel Ass'y BX-300E (UK)	1
	HA04623A	Rear Panel Ass'y BX-300 (U.S.A. & Canada)	1
	HA04624A	Rear Panel Ass'y BX-300 (Japan)	1
	HA04625A	Rear Panel Ass'y BX-300 (Others)	1
	HA04626A	Rear Panel Ass'y BX-300 (Australia)	1
	HA04627A	Rear Panel Ass'y BX-300E (220V Class 2) Serial No.: A12701001 -	1
01	0H04425A	Rear Panel BX-300E	1
	0H04424A	Rear Panel BX-300 (U.S.A., Canada, Australia & Others)	1
	0H04448A	Rear Panel BX-300 (Japan)	1
02	0B81001A	4P Pin Jack	1
03	BA05482A	8P Din Socket Ass'y (Consisting of the followings)	1
	(0B08584A)	8P Din Socket	(1)
	(0B82344A)	8P-H Connector	(1)
04	0B50029A	Power Transformer BX-300 (Australia) & BX-300E	1
	0B50030A	Power Transformer BX-300 (U.S.A. & Canada)	1
	0B50031A	Power Transformer BX-300 (Japan)	1
	0B50032A	Power Transformer BX-300 (Others)	1
05	0B08348A	Power Cord BX-300E (UK)	1
	0B08533A	Power Cord BX-300 (U.S.A., Canada & Others)	1
	0B08219B	Power Cord BX-300 (Japan)	1
	0B05241A	Power Cord BX-300 (Australia)	1
	0B08093U	Power Cord BX-300E (220V Class 2)	1
06	0B08351A	Cord Bushing 4K-4 BX-300E (UK)	1
	0B08037U	Cord Bushing BX-300 & BX-300E (220V Class 2)	1
07	0J04601B	Switch Cover BX-300 (U.S.A., Canada, Japan & Australia) & BX-300E	1
08	0M03948A	Voltage Lock Plate BX-300 (Others)	1
09	0B07092U	Voltage Selector BX-300 (Others)	1
L01	0B08583A	Plastic Rivet	3
L02	0E00637A	Washer 3.3x7x0.5	1
L03	0E00907A	ST 4x8 ⊕ Binding (Black Chromate)	2
L04	0E03072A	M2.6x6 ⊕ Binding (Black Chromate)	2
L05	0E00921A	BT 3x8 ⊕ Binding (Black Chromate)	2
L06	0E00818A	M3x8 ⊕ Binding (Black Chromate)	2

7. MOUNTING DIAGRAMS AND PARTS LIST

Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.
2. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
3. Following transistors are interchangeable with each other.
   a. 2SA733, 2SA608SP, 2SA1048, 2SA1175
   b. 2SC945, 2SC536SP, 2SC2458, 2SC2785
4. Abbreviation for part name:
   TR — Transistor, SiD — Silicon Diode, GD — Germanium Diode, ZD — Zener Diode
   RK — Carbon Resistor, RM — Metal Film Resistor, RF — Fail Safe Type Resistor
   CE — Electrolytic Capacitor, CM — Mylar Capacitor, CC — Ceramic Capacitor, CP — PP Capacitor, CT — Tantalum Capacitor, CF — Film Capacitor, C — Mica Capacitor

7.1. Power Switch P.C.B. Ass'y

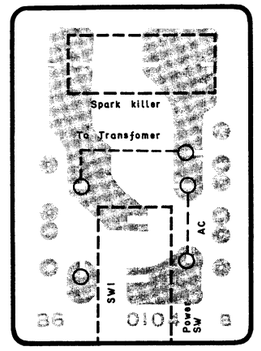


Fig. 7.1

7.2. Shut-off P.C.B. Ass'y

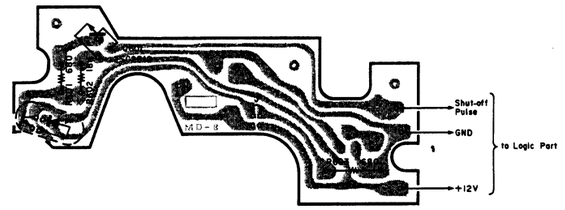


Fig. 7.2

Schematic Ref. No.	Part No.	Description
	BA05372B	P.C.B. Ass'y BX-300 (U.S.A., Canada & Others)
	BA05373B	P.C.B. Ass'y BX-300 (Japan)
	BA05495B	P.C.B. Ass'y BX-300 (Australia)
	BA05374B	Set-A P.C.B. Ass'y BX-300 (consists of the followings)
	BA05353B	Main P.C.B. Ass'y BX-300
	BA05361A	Meter Amp. P.C.B. Ass'y
	BA05366A	Tape Switch P.C.B. Ass'y
	BA05392A	Volume P.C.B. Ass'y
	BA05499A	Input Amp. P.C.B. Ass'y
	BA05375A	Set-B P.C.B. Ass'y (consists of the followings)
	BA05365A	Dolby NR Switch P.C.B. Ass'y
	BA05390A	Control Switch P.C.B. Ass'y
	BA05391A	Counter P.C.B. Ass'y
	BA05428A	Fuse P.C.B. Ass'y

Schematic Ref. No.	Part No.	Description
	BA05371B	P.C.B. Ass'y BX-300E
	BA05374B-E	Set-A P.C.B. Ass'y BX-300E (consists of the followings)
	BA05353B-E	Main P.C.B. Ass'y BX-300E
	BA05361A	Meter Amp. P.C.B. Ass'y
	BA05366A	Tape Switch P.C.B. Ass'y
	BA05392A	Volume P.C.B. Ass'y
	BA05499A	Input Amp. P.C.B. Ass'y
	BA05375A	Set-B P.C.B. Ass'y (consists of the followings)
	BA05365A	Dolby NR Switch P.C.B. Ass'y
	BA05390A	Control Switch P.C.B. Ass'y
	BA05391A	Counter P.C.B. Ass'y
	BA05428A	Fuse P.C.B. Ass'y

Schematic Ref. No.	Part No.	Description
	BA05389A	Power Switch P.C.B. Ass'y BX-300 (Australia & Others) & BX-300E
	BA05388A	Power Switch P.C.B. Ass'y BX-300 (U.S.A. & Canada)
	BA05387A	Power Switch P.C.B. Ass'y BX-300 (Japan)
	0B60104B	Power Switch P.C.B.
SW1	0B70002A	Power Switch
	0B08342A	Spark Killer BX-300 (U.S.A. & Canada) (1)
	0B08445A	Spark Killer BX-300 (Australia & Others) & BX-300E (1)
	0B08363A	Spark Killer BX-300 (Japan) (1)
	0B08359A	Spark Killer Cover BX-300 (Australia & Others) & BX-300E (1)
	0J04763A	Power Switch Holder (1)
	0E00752A	Eyelet 2x3 (2)
	0E00612A	M3x6 ⊕ Pan (2A) (2)
	CA80011A	Shut-off P.C.B. Ass'y
	0C80047A	Shut-off P.C.B.
Q601	0B06388A	TR 2SC2812
Q602	0B06389A	Photo Reflector NJL5141
R601,603	0B09840A	RK 680 Leadless
R602	0B09841A	RK 18K Leadless

7.3. Fuse P.C.B. Ass'y

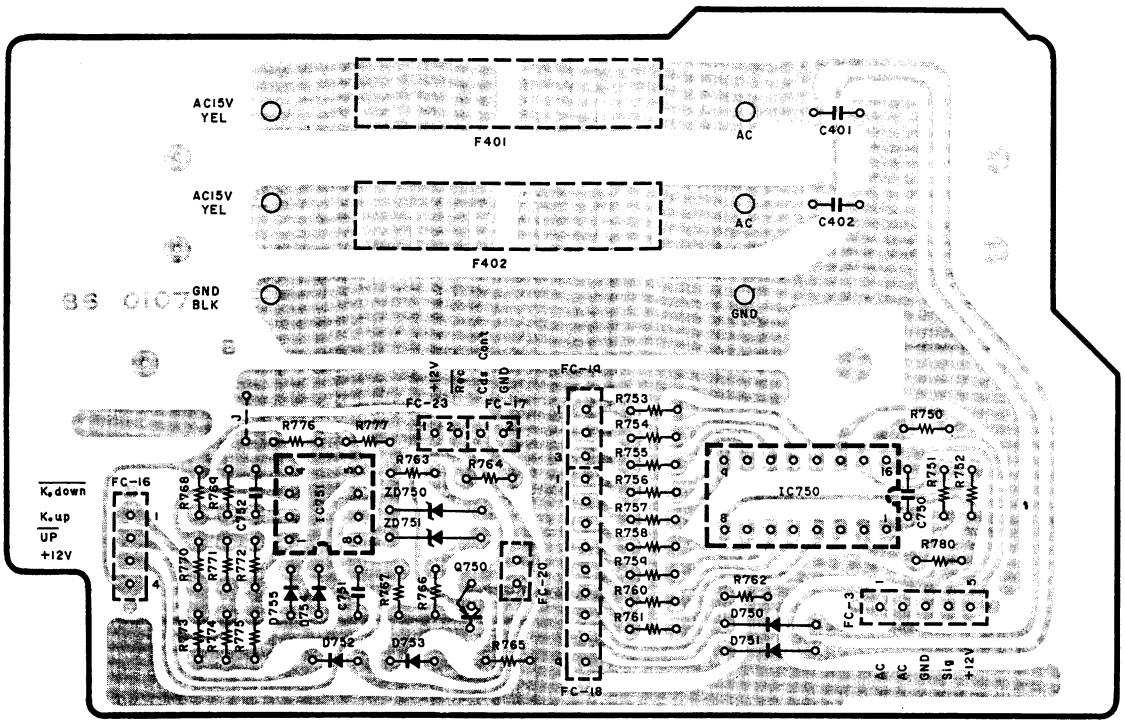


Fig. 7.3

7.4. Volume P.C.B. Ass'y

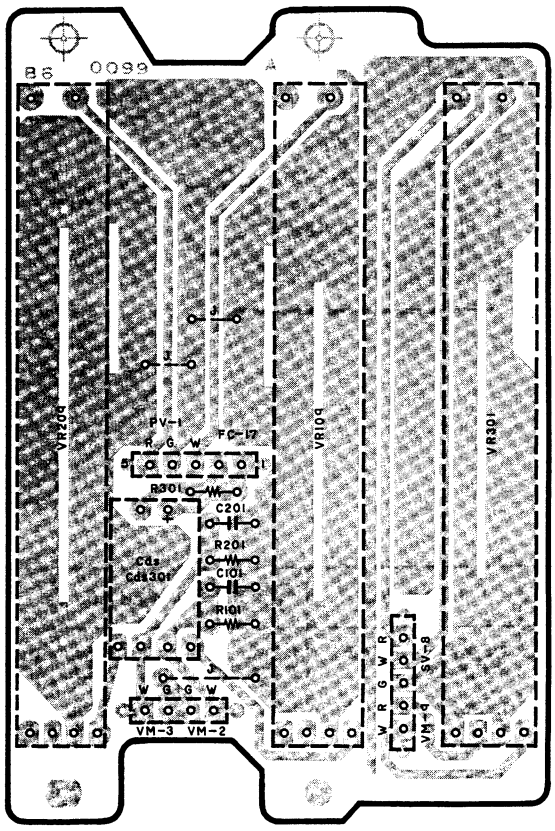


Fig. 7.4

Schematic Ref. No.	Part No.	Description
	BA05428A	**Fuse P.C.B. Ass'y**
	0B60107B	Fuse P.C.B.
IC750	0B06369A	IC TA7612AP
IC751	0B11031A	IC TL092
Q750	0B06013A	TR 2SA733
ZD750,751	0B06191A	ZD 2.7V RD2.7E
D750,751	0B06181A	SiD 1SS53
D752,753	0B06398A	SiD 1SS176
754,755		
R750	0B09695A	RK 5.6K 1/6W J
R751,764	0B09677A	RK 1K 1/6W J
R752,767	0B09701A	RK 10K 1/6W J
R753-762	0B09681A	RK 1.5K 1/6W J (10)
R763	0B09709A	RK 22K 1/6W J
R765,768	0B09725A	RK 100K 1/6W J
769,772		
776,777		
R766	0B09685A	RK 2.2K 1/6W J
R770	0B09717A	RK 47K 1/6W J
R771	0B09713A	RK 33K 1/6W J
R773,774	0B09737A	RK 330K 1/6W J
R775	0B09749A	RK 1M 1/6W J
R780	0B09651A	RK 82 1/6W J
C401,402	0B09292A	CC 0.1μ 50V Z
C750	0B09281A	CC 150P 50V K
C751	0B09163A	CE 10μ 16V (BP)
C752	0B09868A	CF 0.1μ 50V J
FC3	0B02350A	JP Connector 5P
FC16, 17.23	0B02349A	JP Connector 4P
FC18.19	0B02356A	JP Connector 12P
FC20	0B81163A	Wire Trap 2P S
	BA05392A	**Volume P.C.B. Ass'y**
	0B60099A	Volume P.C.B.
Cds301	0B06325B	Photocoupler MCD7214F
VR109,209	0B31002A	Slide Volume 100K (A)
VR301	0B31001A	Slide Volume 10K (A)x2
R101,201	0B09719A	RK 56K 1/6W J
R301	0B09695A	RK 5.6K 1/6W J
C101,201	0B41386A	CP 100P 100V J
VM2.3	0B81011A	Dip Mate 4P
PV1,VM9	0B81012A	Dip Mate 5P

7.5. Input Amp. P.C.B. Ass'y

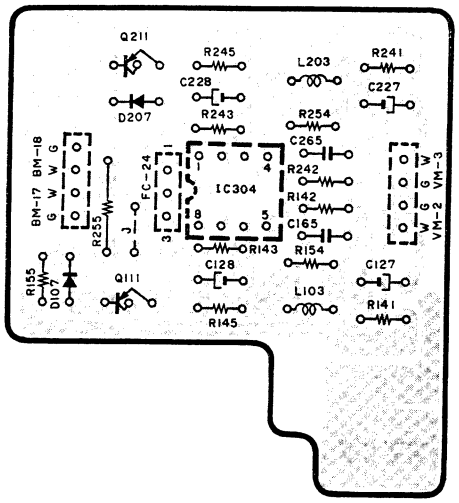


Fig. 7.5 Serial No.: A12702001 —

7.6. Meter Amp. P.C.B. Ass'y

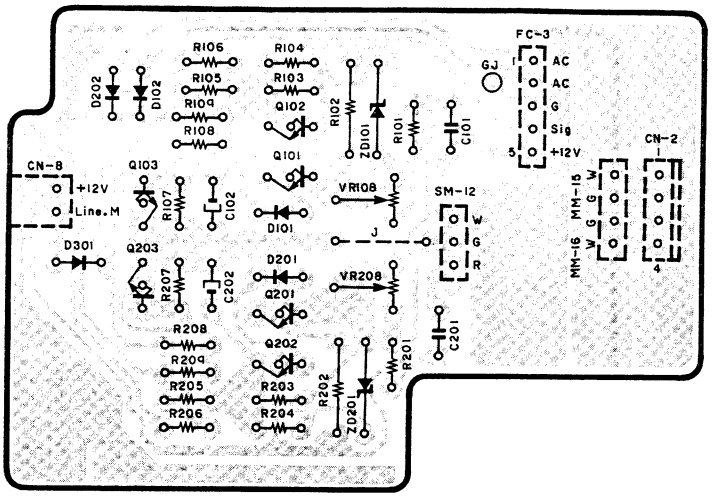


Fig. 7.6

Schematic Ref. No.	Part No.	Description
	BA05499A	**Input Amp. P.C.B. Ass'y** Serial No.: A12702001 -
	0B60125A	Input Amp. P.C.B.
IC304	0B06146A	IC 4558DD
Q111,211	0B06013A	TR 2SA733 (P,Q)
D107,207	0B06398A	SiD 1SS176
L103,203	0B06676B	Inductor 36mH G
R141,241	0B09733A	RK 220K 1/6W J
R142,242	0B09653A	RK 100 1/6W J
R143,243	0B22426A	RM 53.6K 1/6W F
R145,245	0B22313A	RM 5.49K 1/6W F
R154,254	0B22396A	RM 30.1K 1/6W F
R155	0B09701A	RK 10K 1/6W J
R255	0B01888A	RK 10K 1/4W J
C127,227	0B09814A	CE 1μ 50V (LN)
C128,228	0B09932A	CE 22μ 16V (LN)
C165,265	0B09409A	CP 1800P 100V G
FC24	0B81010A	Dip Mate 3P
	0B81011A	Dip Mate 4P (2)
	BA05361A	**Meter Amp. P.C.B. Ass'y**
	0B60108B	Meter Amp. P.C.B.
Q101,102 201,202	0B10039A	TR 2SC1740S
Q103,203	0B01872A	TR 2SC945L (P,Q)
ZD101,201	0B12101A	ZD 5V 5C-1
D101,102 201,202 301	0B06398A	SiD 1SS176
VR108,208	0B32026A	Semi-fixed VR 220K
R101,201	0B09717A	RK 47K 1/6W J
R102,202	0B01889A	RK 100K 1/4W J
R103,203	0B09747A	RK 820K 1/6W J
R104,204	0B09723A	RK 82K 1/6W J
R105,106 108,109 205,206 208,209	0B09725A	RK 100K 1/6W J
R107,207	0B09719A	RK 56K 1/6W J
C101,201	0B09868A	CF 0.1μ 50V J
C102,202	0B09148A	CE 10μ 25V (LN)
CN2	0B02242A	4P-T Post
CN8	0B81175A	B-B Connector 2P
SM12	0B81010A	Dip Mate 3P
MM15,16	0B81011A	Dip Mate 4P
FC3	0B81012A	Dip Mate 5P
	0J04790A	P.C.B. Holder (1)
	0E00607A	M3x8 ⊕Pan (3A) (1)

7.7. Dolby NR Switch P.C.B. Ass'y

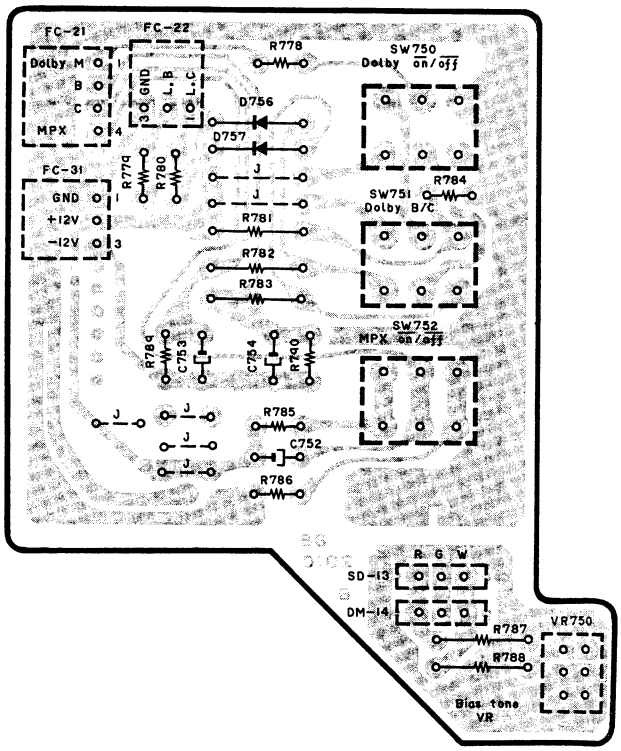


Fig. 7.7

Schematic Ref. No.	Part No.	Description
	BA05365A	**Dolby NR Switch P.C.B. Ass'y**
	0B60102B	Dolby NR Switch P.C.B.
D756,757	0B06181A	SiD 1SS53
VR750	0B30016A	Semi-fixed VR 100Kx2
R778	0B09697A	RK 6.8K 1/6W J
R779,780	0B09677A	RK 1K 1/6W J
R781	0B09391A	RK 91K 1/4W J
R782,783	0B05575A	RK 560 1/4W J
R784	0B09713A	RK 33K 1/6W J
R785	0B09695A	RK 5.6K 1/6W J
R786,789 790	0B09701A	RK 10K 1/6W J
R787,788	0B01887A	RK 5.6K 1/4W J
C752	0B01412A	CE 10μ 16V
C753,754	0B01405A	CE 1μ 50V
FC21	0B81011A	Dip Mate 4P
FC22,31	0B81153A	Wire Trap 3P R
SD13,DM14	0B81010A	Dip Mate 3P
	0J04768B	Earth Plate A (1)
	0B70024A	Push Switch 3-Key (1)

Schematic Ref. No.	Part No.	Description
	BA05390A	**Control Switch P.C.B. Ass'y**
	0B60100A	Control Switch P.C.B.
Q701	0B10030A	TR 2SC1740S
Q702	0B10007A	TR 2SC3399
Q703	0B10003A	TR 2SA1345
Q704	0B10026A	TR 2SA933S
LED701 703,704	0B06334A	LED TLG124A (GRN)
LED702 705,706	0B06333A	LED TLR124A (RED)
D701,703	0B06181A	SiD 1SS53
D702,704 705	0B06398A	SiD 1SS176
R701	0B05795A	RK 150 1/4W J
R702	0B09657A	RK 150 1/6W J
R703	0B09667A	RK 390 1/6W J
R704	0B09663A	RK 270 1/6W J
R705	0B09701A	RK 10K 1/6W J
R706,707	0B09677A	RK 1K 1/6W J
R716	0B09693A	RK 4.7K 1/6W J
SW701-709	0B70004A	Touch Switch 4.3mm
	0J04744A	LED Reflector (6)
	BA05391A	**Counter P.C.B. Ass'y**
	0B60101B	Counter P.C.B.
IC701	0B06368A	IC LM6416E-106
Q701,702 703,704 705	0B10026A	TR 2SA933S
LED701	0B12098A	Counter LED
R701,702 715	0B05625A	RK 220K 1/4W J
R703	0B09701A	RK 10K 1/6W J
R704,705 706,707 716	0B09687A	RK 2.7K 1/6W J
R708,709 710,711 712,713 714	0B09661A	RK 220 1/6W J
R717	0B01846A	RK 4.7K 1/4W J
C701	0B09282A	CC 100P 50V K
C702	0B05557A	CM 0.015μ 50V J
C703	0B05885A	CE 100μ 10V
SW701,702	0B70010A	Slide Switch 2-2
SW703	0B07437A	Slide Switch 2-3
	0B81016A	9P Socket (1)
	0B81017A	11P Socket (1)

7.8. Control Switch P.C.B. Ass'y

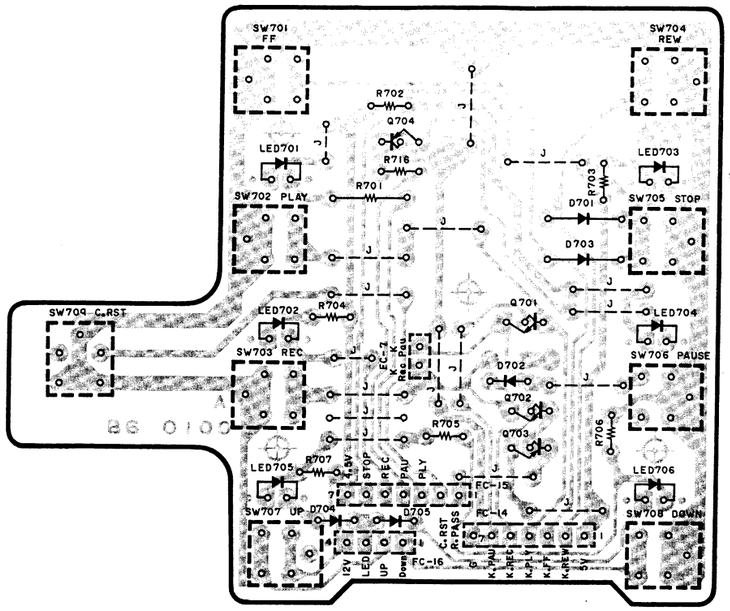


Fig. 7.8

7.9. Counter P.C.B. Ass'y

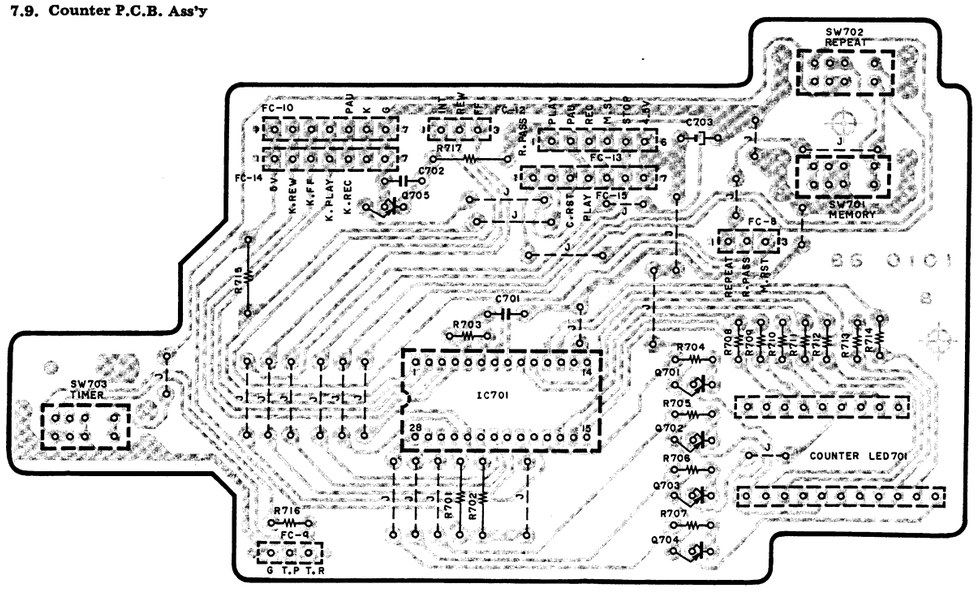


Fig. 7.9

7.10. Tape Switch P.C.B. Ass'y

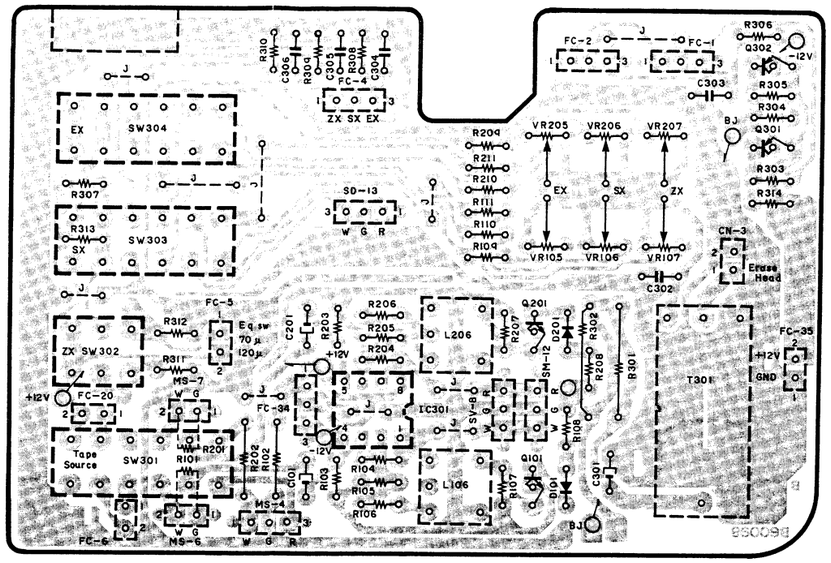


Fig. 7.10

Schematic Ref. No.	Part No.	Description
	BA05366A	**Tape Switch P.C.B. Ass'y**
	— Line Amp. —	
IC301	0B06443A	IC NJM082D
Q101,201	0B01872A	TR 2SC945L (P,Q)
L106,206	0B06691A	L-C Block
D101,201	0B06398A	SiD 1SS176
R101,102 201,202	0B09725A	RK 100K 1/6W J
R103,203	0B09733A	RK 220K 1/6W J
R104,204	0B22342A	RM 9.76K 1/6W F
R105,205	0B22308A	RM 4.99K 1/6W F
R106,206	0B09677A	RK 1K 1/6W J
R107,207	0B09749A	RK 1M 1/6W J
R108,208	0B09701A	RK 10K 1/6W J
C101,201	0B09814A	CE 1μ 50V (LN)
C107,207	0B09270A	CP 470P 100V J
	— Miscellaneous —	
	0B60098B	Tape Switch P.C.B.
Q301	0B01426A	TR 2SA562 (O,Y)
Q302	0B06013A	TR 2SA733 (P,Q)
T301	0B51047A	Bias Osc.
VR105,205	0B32010A	Semi-fixed VR 47K
VR106,206	0B32009A	Semi-fixed VR 22K
VR107,207	0B32008A	Semi-fixed VR 10K
R109,209	0B09705A	RK 15K 1/6W J
R110,210	0B09697A	RK 6.8K 1/6W J
R111,211	0B09653A	RK 100 1/6W J
R301	0B09936A	RF 10 1/2W J
R302	0B09998A	RF 22 1W J
R303	0B09685A	RK 2.2K 1/6W J
R304	0B09721A	RK 68K 1/6W J
R305,306 313	0B09701A	RK 10K 1/6W J
R307	0B09717A	RK 47K 1/6W J
R308,309 310,311 312	0B09725A	RK 100K 1/6W J
R314	0B09669A	RK 470 1/6W J
C301	0B01403A	CE 47μ 16V
C302	0B09538A	CP 0.018μ 100V J
C303	0B09844A	CF 1000P 50V J
C304,305 306	0B05681A	CM 0.01μ 50V J
CN3	0B81051A	2P-S Post
	0B81164A	Wire Trap 3P (1)
	0B81010A	Dip Mate 3P (7)
	0B81002A	Dip Mate 2P (4)
	0B70030A	Push Switch 5-Key (1)
	0J04768B	Earth Plate A (1)

7.11. Main P.C.B. Ass'y

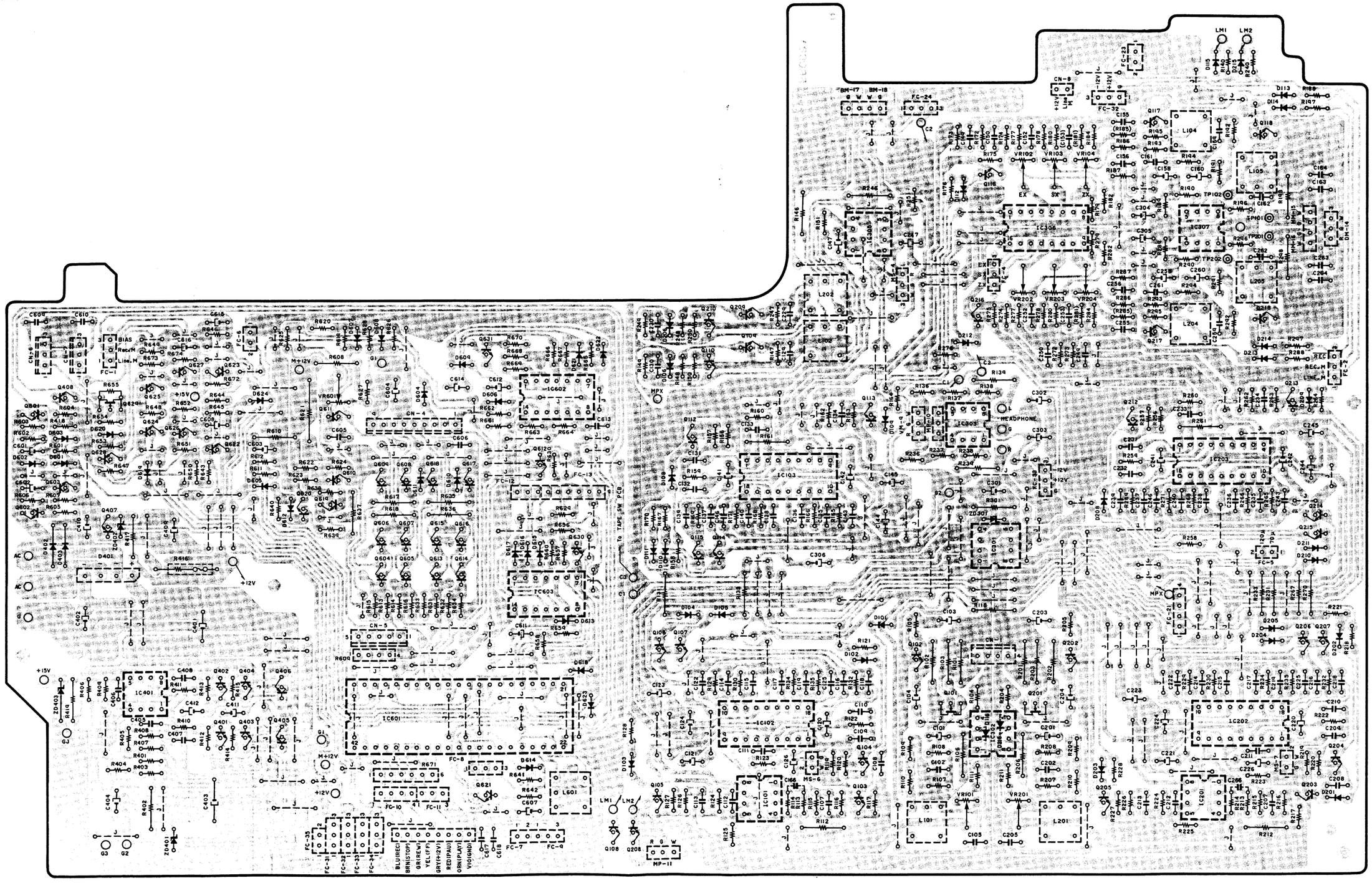


Fig. 7.11.1 Serial No.: A12702001 —

Schematic Ref. No.	Part No.	Description
	BA05353B	Main P.C.B. Ass'y BX-300
		Serial No.: A12702001 -
	— PB Eq. Amp. —	
IC301	0B06370A	IC 4556D
IC302	0B11005A	IC NJM072DE
Q101,201	0B06376A	FET 2SK170 (GR)
Q102,202	0B06142A	TR 2SC2240 (BL)
ZD301	0B12123A	ZD 6.2V RD6.2JSB2
D116,216	0B06398A	SiD 1SS176
L101,201	0B06717A	Trap Unit
VR101,201	0B32008A	Semi-fixed VR 10K
R101,201	0B01889A	RK 100K 1/4W J
R102,202	0B09757A	RM 1.54K 1/4W F
R103,203	0B09891A	RM 80.6 1/4W F
R104,204	0B09741A	RK 470K 1/6W J
R105,205	0B09709A	RK 22K 1/6W J
R106,206	0B22548A	RM 4.7M 1/4W J
R107,207	0B22512A	RM 316K 1/6W F
R108,208	0B22353A	RM 12.4K 1/6W F
R109,209	0B09667A	RK 390 1/6W J
R110,210	0B09673A	RK 680 1/6W J
R111,211	0B09697A	RK 6.8K 1/6W J
R301	0B01857A	RK 1K 1/4W J
C101,201	0B09814A	CE 1μ 50V (LN)
C102,202	0B09591A	CP 0.01μ 100V J
C103,104 203,204	0B09816A	CE 10μ 16V (LN)
C105,205	0B01804A	CM 3900P 50V J
C301	0B01400A	CE 100μ 16V
CN1	0B02242A	4P-T Post
	— Rec. Eq. Amp. —	
IC307	0B06387A	IC 2043DD
Q117,118 217,218	0B06299A	TR 2SC2878
D113,114 213,214	0B06398A	SiD 1SS176
L104,204	0B51045A	L-C Block
L105,205	0B06705A	Trap Coil 1.05mH
R188,288	0B09707A	RK 18K 1/6W J
R189,191 289,291	0B09731A	RK 180K 1/6W J
R190,290	0B09677A	RK 1K 1/6W J
R192,292	0B09715A	RK 39K 1/6W J
R193,293	0B09691A	RK 3.9K 1/6W J
R194,294	0B09705A	RK 15K 1/6W J
R195,295	0B09673A	RK 680 1/6W J
R196,296	0B22247A	RM 1.5K 1/6W F
R197,297	0B09701A	RK 10K 1/6W J
R198,298	0B05936A	RK 10 1/4W J
C158,258	0B09814A	CE 1μ 50V (LN)
C159,259	0B01780A	CM 0.1μ 50V J
C160,260	0B09932A	CE 22μ 16V (LN)
C161,261	0B05652A	CM 4700P 50V J
C162,262	0B09834A	CP 2200P 100V J
C163,263	0B09270A	CP 470P 100V J
C164,264	0B09322A	CP 330P 100V J
C304,305	0B09816A	CE 10μ 16V
	0B02348A	JP Connector 3P
	— Rec. Cal. —	
IC306	0B11027A	IC TC9145P
Q116,216	0B01872A	TR 2SC945L (P,Q)
D112,212	0B06398A	SiD 1SS176
VR102,103 202,203	0B32008A	Semi-fixed VR 10K
VR104,204	0B32009A	Semi-fixed VR 22K
R172,187 272,287	0B09705A	RK 15K 1/6W J
R173,273	0B09703A	RK 12K 1/6W J
R174,274	0B22326A	RM 6.98K 1/6W F
R175,275	0B09749A	RK 1M 1/6W J
R176,276	0B09709A	RK 22K 1/6W J
R177,277	0B09699A	RK 8.2K 1/6W J
R178,278	0B09677A	RK 1K 1/6W J
R179,279	0B09693A	RK 4.7K 1/6W J
R180,280	0B09697A	RK 6.8K 1/6W J
R182,282	0B09689A	RK 3.3K 1/6W J
R184,186 284,286	0B09701A	RK 10K 1/6W J
C149,249	0B09270A	CP 470P 100V J
C150,250	0B05681A	CM 0.01μ 50V J
C152,252	0B01913A	CM 1800P 50V J
C155,255	0B09189A	CM 2700P 50V J
C156,256	0B05583A	CM 0.033μ 50V J

Schematic Ref. No.	Part No.	Description
	— DC Supply —	
IC401	0B06216A	IC μPC4556C
Q401,403	0B01872A	TR 2SC945L (P,Q)
Q402,404	0B06013A	TR 2SA733 (P,Q)
Q407,408	0B06322A	TR 2SC2002 (K,L)
ZD401	0B12121A	ZD 5.1V RD5.1JSB2
ZD402	0B12122A	ZD 5.6V RD5.6JSB2
ZD403	0B12104A	ZD 15V RD15EB3
D401	0B06282A	Diode Bridge DBA10
D402,403	0B06109A	SiD GP08B
R401	0B22357A	RM 13.7K 1/6W F
R402	0B09203A	RM 10K 1/4W F
R403,404	0B22347A	RM 11K 1/6W F
R405,406	0B09695A	RK 5.6K 1/6W J
R407	0B09681A	RK 1.5K 1/6W J
R408,409	0B09749A	RK 1M 1/6W J
R410,411	0B09701A	RK 10K 1/6W J
R412,413	0B09693A	RK 4.7K 1/6W J
R414,415	0B09677A	RK 1K 1/6W J
R416	0B24007A	RF 22 2W J
R416	0B08715A	R Fuse 129
R417	0B24006A	RF 560 1W J
R418	0B09665A	RK 330 1/6W J
R419	0B05576A	RK 470 1/4W J
C401	0B40197A	CE 4700μ 25V
C402	0B01401A	CE 470μ 25V
C403	0B40196A	CE 10000μ 16V
C404	0B40180A	CE 2200μ 16V
C405,406 C407,408	0B09393A	CC 68P 50V J
	0B05652A	CM 4700P 50V J
C409	0B40079A	CE 220μ 16V
C410	0B01403A	CE 47μ 16V
C411,412	0B01272A	CE 100μ 25V
	0E00857A	BT 3x6 ⊕Binding (2)
	— Buffer —	
IC305	0B06146A	IC 4558DD
Q109,110 209,210	0B10039A	TR 2SC1740S
D106,206	0B06398A	SiD 1SS176
L102,202	0B06690A	L-C Block (BLU)
R146,246	0B09421A	RM 2.67K 1/4W F
R147,149 247,249	0B09749A	RK 1M 1/6W J
R148,150 248,250	0B09701A	RK 10K 1/6W J
R151,251	0B22315A	RM 5.62K 1/6W F
C129,229	0B09189A	CM 2700P 50V J
C130,230	0B05687A	CM 1200P 50V J
C147,247	0B09816A	CE 10μ 16V (LN)
	— Logic —	
IC601	0B11020A	IC TMP4315BP-1814
IC602	0B06317A	IC μPD4030BC
IC603	0B06214A	IC μPD4071BC
Q601,602 603,611 612,620 621,631	0B01872A	TR 2SC945L (P,Q)
Q604,605 613,614 623,625	0B06013A	TR 2SA733 (P,Q)
Q606,607 615,616 630	0B06322A	TR 2SC2002 (K,L)
Q608,609 617,618	0B06372A	TR 2SA953 (K,L)
Q610,619	0B06371A	TR 2SD1286 (L,K)
Q622,624 626	0B10007A	TR 2SC3399
Q627,628	0B10003A	TR 2SA1345
Q629	0B10022A	FET 2SK246
D601-624	0B06398A	SiD 1SS176
L601	0B06689A	L-C Block (BLK)
VR601	0B32007A	Semi-fixed VR 470
R601	0B09693A	RK 4.7K 1/6W J
R602	0B09719A	RK 56K 1/6W J
R603,641 642,648 651	0B09713A	RK 33K 1/6W J
R604,640 643,644 647,650 656,660 665,670	0B09701A	RK 10K 1/6W J

Schematic Ref. No.	Part No.	Description
R605,611 612,653 657,662 672	0B09725A	RK 100K 1/6W J
R606,622	0B09707A	RK 18K 1/6W J
R607,626	0B09695A	RK 5.6K 1/6W J
R608	0B09217A	RF 5.6 1/4W J
R609	0B09824A	R-Network 100Kx3
R610	0B05509A	RK 33K 1/4W J
R613,614 631,632 652,666	0B09677A	RK 1K 1/6W J
R615,616 633,634	0B09741A	RK 470K 1/6W J
R617,618	0B01679A	RK 100 1/4W J
R619	0B05836A	RK 2.7 1/4W J
R620	0B06706A	R Coil 3.5
R621	0B09831A	RF 22 1W J
R623	0B09715A	RK 39K 1/6W J
R624	0B09699A	RK 8.2K 1/6W J
R625	0B09711A	RK 27K 1/6W J
R627,638	0B09671A	RK 560 1/6W J
R628	0B09663A	RK 270 1/6W J
R629	0B09729A	RK 150K 1/6W J
R630,645	0B09717A	RK 47K 1/6W J
R635,636	0B01933A	RK 220 1/4W J
R637	0B24023A	R Fuse 1
R639	0B09681A	RK 1.5K 1/6W J
R646	0B09721A	RK 68K 1/6W J
R649	0B09689A	RK 3.3K 1/6W J
R654,669	0B09749A	RK 1M 1/6W J
R655	0B22456A	RM 97.6K 1/6W F
R658	0B09733A	RK 220K 1/6W J
R659	0B09735A	RK 270K 1/6W J
R661	0B09687A	RK 2.7K 1/6W J
R663,664 667,668	0B09737A	RK 330K 1/6W J
R671	0B09803A	R-Network 47Kx5
R673	0B09705A	RK 15K 1/6W J
R674	0B09697A	RK 6.8K 1/6W J
C601,611 615	0B01405A	CE 1μ 50V
C602	0B40011A	CE 33μ 16V
C603	0B40024A	CE 0.33μ 50V
C604	0B40079A	CE 220μ 16V
C605	0B01802A	CM 2200P 50V J
C606,613	0B09290A	CC 0.01μ 50V Z
C607	0B09817A	CE 33μ 10V (LN)
C608,616	0B09148A	CE 10μ 25V (LN)
C609,610	0B09292A	CC 0.1μ 50V Z
C612	0B40178A	CE 0.47μ 50V
C614	0B09332A	CE 2.2μ 50V (LN)
C617,618	0B09286A	CC 470P 50V K
CN4	0B02245A	9P-T Post
CN5	0B02243A	5P-T Post
CN6	0B08653A	3P-T Post
CN7	0B08185A	3P-T Post
	0B02348A	JP Connector 3P (1)
	0B02352A	JP Connector 7P (1)
	0B02354A	JP Connector 9P (1)
	0B02350A	JP Connector 5P (1)
	— Encoder —	
IC103,203	0B06382A	IC TEA0652
Q112,113 114,115 212,213 214,215	0B01872A	TR 2SC945L (P,Q)
D108-111 208-211	0B06398A	SiD 1SS176 (8)
R156,256	0B22351A	RM 12K 1/6W F
R157,257	0B22305A	RM 4.7K 1/6W F
R158,164 258,264	0B09701A	RK 10K 1/6W J
R159,167 170,259	0B09717A	RK 47K 1/6W J
R160,260	0B22443A	RM 75K 1/6W F
R161,261	0B05794A	RK 680 1/4W J
R162,262	0B09683A	RK 1.8K 1/6W J
R163,165 171,263 265,271	0B09737A	RK 330K 1/6W J
R166,168 266,268	0B09739A	RK 390K 1/6W J
R169,269	0B09723A	RK 82K 1/6W J
R267,270	0B05641A	RK 47K 1/4W J
C131,231	0B09240A	CP 0.033μ 100V G

Schematic Ref. No.	Part No.	Description
C132,232	0B05652A	CM 4700P 50V J
C133,233	0B09191A	CP 4700P 100V G
C134,234	0B09045A	CM 0.027μ 50V J
C135,140 235,240	0B09862A	CF 0.033μ 50V J
C136,138 236,238	0B09868A	CF 0.1μ 50V J
C137,237	0B09870A	CF 0.15μ 50V J
C139,239	0B09866A	CF 0.068μ 50V J
C141,142 241,242 306	0B01412A	CE 10μ 16V
C143,243	0B09872A	CF 0.22μ 50V J
C144,145 244,245	0B01400A	CE 100μ 16V
C146,246	0B09864A	CF 0.047μ 50V J
	— Decoder —	
IC101,201	0B11005A	IC NJM072DE
IC102,202	0B06382A	IC TEA0652
Q103-107 203-207	0B01872A	TR 2SC945L (P,Q) (10)
D101-105 201-205	0B06398A	SiD 1SS176 (10)
R112,212	0B05625A	RK 220K 1/4W J
R113,121 128,213 221,228	0B09701A	RK 10K 1/6W J
R114,214	0B09681A	RK 1.5K 1/6W J
R115,215	0B22248A	RM 1.54K 1/6W F
R116,216	0B22263A	RM 2.1K 1/6W F
R117,127 217,227	0B09749A	RK 1M 1/6W J
R118	0B01846A	RK 4.7K 1/4W J
R119,219	0B22351A	RM 12K 1/6W F
R120,220	0B22305A	RM 4.7K 1/6W F
R122,222	0B09717A	RK 47K 1/6W J
R123,223	0B22443A	RM 75K 1/6W F
R124,224	0B09685A	RK 2.2K 1/6W J
R125,225	0B09713A	RK 33K 1/6W J
R126,218 226	0B09693A	RK 4.7K 1/6W J
R129,135 229,235	0B09737A	RK 330K 1/6W J
R130,134 230,234	0B09739A	RK 390K 1/6W J
R131,133 231,233	0B05641A	RK 47K 1/4W J
R132,232	0B09723A	RK 82K 1/6W J
C107,109 207,209	0B09240A	CP 0.033μ 100V G
C108,115 117,208 215,217	0B09868A	CF 0.1μ 50V J
C110,210	0B05652A	CM 4700P 50V J
C111,211	0B09191A	CP 4700P 100V G
C112,212	0B09322A	CP 330P 100V J
C113,213	0B05681A	CM 0.01μ 50V J
C114,119 214,219	0B09862A	CF 0.033μ 50V J
C116,216	0B09870A	CF 0.15μ 50V J
C118,218	0B09866A	CF 0.068μ 50V J
C120,121 220,221	0B01412A	CE 10μ 16V
C122,222	0B09872A	CF 0.22μ 50V J
C123,124 223,224	0B01400A	CE 100μ 16V
C125,225	0B09864A	CF 0.047μ 50V J
C126,226	0B09816A	CE 10μ 16V (LN)
C166,266	0B09285A	CC 330P 50V K
	— Headphone Amp. —	
IC303	0B06370A	IC 4556D
Q108,208	0B06299A	TR 2SC2878
D115,215	0B06398A	SiD 1SS176
R136,236	0B09685A	RK 2.2K 1/6W J
R137,138 237,238	0B09725A	RK 100K 1/6W J
R139,239	0B09210A	RF 33 1/4W J
R140,240	0B09693A	RK 4.7K 1/6W J
C302,303	0B01400A	CE 100μ 16V

Schematic Ref. No.	Part No.	Description
	— Miscellaneous —	
	0B60097B	Main P.C.B.
	0B81010A	Dip Mate 3P (14)
	0B81002A	Dip Mate 2P (6)
	0B81011A	Dip Mate 4P (2)
	0B81165A	Wire Trap 4P S (1)
	0B08584A	8P DIN Socket (1)
	0B82344A	SCN-S (1)
Q405	0B06452A	TR 2SD1406
Q406	0B06451A	TR 2SB1015
	0B90026A	Heat Sink (1)
	0E00507A	Nut Hex. M3 (2)
	0E00510A	M3x8 ⊕Pan (2A) (2)
	BA05353B-E	Main P.C.B. Ass'y BX-300E
		Serial No.: A12702001 -
		Content is the same as for BX-300 except for the following sections.
	— Rec. Eq. Amp. —	
IC307	0B06387A	IC 2043DD
Q117,118 217,218	0B06299A	TR 2SC2878
D113,114 213,214	0B06398A	SiD 1SS176
L104,204	0B51045A	L-C Block
L105,205	0B06705A	Trap Coil 1.05mH
R188,288	0B09707A	RK 18K 1/6W J
R189,191 289,291	0B09731A	RK 180K 1/6W J
R190,290	0B09677A	RK 1K 1/6W J
R192,292	0B09715A	RK 39K 1/6W J
R193,293	0B09691A	RK 3.9K 1/6W J
R194,294	0B09709A	RK 22K 1/6W J
R195,295	0B09673A	RK 680 1/6W J
R196,296	0B22247A	RM 1.5K 1/6W F
R197,297	0B09701A	RK 10K 1/6W J
R198,298	0B05936A	RK 10 1/4W J
C158,258	0B09814A	CE 1μ 50V (LN)
C159,259	0B01780A	CM 0.1μ 50V J
C160,260	0B09932A	CE 22μ 16V (LN)
C161,261	0B05652A	CM 4700P 50V J
C162,262	0B09834A	CP 2200P 100V J
C163,263	0B09270A	CP 470P 100V J
C164,264	0B09322A	CP 330P 100V J
C304,305	0B09816A	CE 10μ 16V
	0B02348A	JP Connector 3P
	— Rec. Cal. —	
IC306	0B11027A	IC TC9145P
Q116,216	0B01872A	TR 2SC945L (P,Q)
D112,212	0B06398A	SiD 1SS176
VR102,103 202,203	0B32008A	Semi-fixed VR 10K
VR104,204	0B32009A	Semi-fixed VR 22K
R172,187 272,287	0B09705A	RK 15K 1/6W J
R173,273	0B09703A	RK 12K 1/6W J
R174,274	0B22326A	RM 6.98K 1/6W F
R175,275	0B09749A	RK 1M 1/6W J
R176,276	0B09709A	RK 22K 1/6W J
R177,277	0B09699A	RK 8.2K 1/6W J
R178,278	0B09711A	RK 27K 1/6W J
R179,279	0B09693A	RK 4.7K 1/6W J
R180,280	0B09697A	RK 6.8K 1/6W J
R181,281	0B09713A	RK 33K 1/6W J
R182,282	0B09689A	RK 3.3K 1/6W J
R184,186 284,286	0B09701A	RK 10K 1/6W J
R185,285	0B09685A	RK 2.2K 1/6W J
C149,249	0B09270A	CP 470P 100V J
C150,250	0B05681A	CM 0.01μ 50V J
C152,252	0B05659A	CM 5600P 50V J
C153,155 253,255	0B05843A	CM 0.012μ 50V J
C156,256	0B05583A	CM 0.033μ 50V J

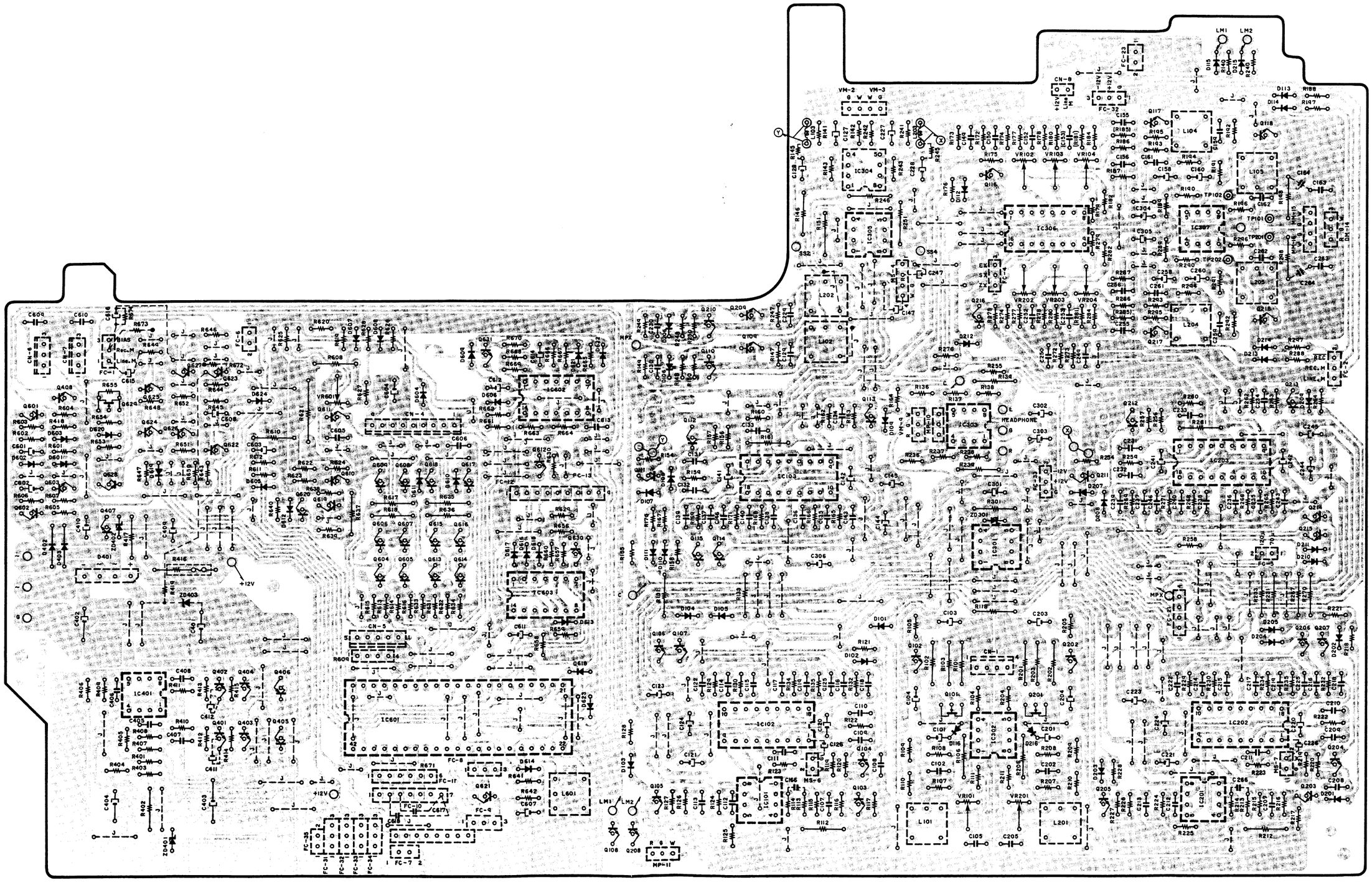


Fig. 7.11.2 Serial Nos.: A12701001 — 02000

Schematic Ref. No.	Part No.	Description
	BA05353A	Main P.C.B. Ass'y BX-300 Serial Nos.: A12701001 - 02000
	— PB Eq. Amp. —	
IC301	0B06370A	IC 4556D
IC302	0B11005A	IC NJM072DE
Q101,201	0B06376A	FET 2SK170 (GR)
Q102,202	0B06142A	TR 2SC2240 (BL)
ZD301	0B12123A	ZD 6.2V RD6.2JSB2
D116,216	0B06398A	SiD 1SS176
L101,201	0B06717A	Trap Unit
VR101,201	0B32008A	Semi-fixed VR 10K
R101,201	0B01889A	RK 100K 1/4W J
R102,202	0B09757A	RM 1.54K 1/4W F
R103,203	0B09891A	RM 80.6 1/4W F
R104,204	0B09741A	RK 470K 1/6W J
R105,205	0B09709A	RK 22K 1/6W J
R106,206	0B22548A	RM 4.7M 1/4W J
R107,207	0B22512A	RM 316K 1/6W F
R108,208	0B22353A	RM 12.4K 1/6W F
R109,209	0B09667A	RK 390 1/6W J
R110,210	0B09673A	RK 680 1/6W J
R111,211	0B09697A	RK 6.8K 1/6W J
R301	0B01857A	RK 1K 1/4W J
C101,201	0B09814A	CE 1μ 50V (LN)
C102,202	0B09591A	CP 0.01μ 100V J
C103,104 203,204	0B09816A	CE 10μ 16V (LN)
C105,205	0B01804A	CM 3900P 50V J
C301	0B01400A	CE 100μ 16V
CN1	0B02242A	4P-T Post
	— Rec. Eq. Amp. —	
IC307	0B06387A	IC 2043DD
Q117,118 217,218	0B06299A	TR 2SC2878
D113,114 213,214	0B06398A	SiD 1SS176
L104,204	0B51045A	L-C Block
L105,205	0B06705A	Trap Coil 1.05mH
R188,288	0B09707A	RK 18K 1/6W J
R189,191 289,291	0B09731A	RK 180K 1/6W J
R190,290	0B09677A	RK 1K 1/6W J
R192,292	0B09715A	RK 39K 1/6W J
R193,293	0B09691A	RK 3.9K 1/6W J
R194,294	0B09705A	RK 15K 1/6W J
R195,295	0B09673A	RK 680 1/6W J
R196,296	0B22247A	RM 1.5K 1/6W F
R197,297	0B09701A	RK 10K 1/6W J
R198,298	0B05936A	RK 10 1/4W J
C158,258	0B09814A	CE 1μ 50V (LN)
C159,259	0B01780A	CM 0.1μ 50V J
C160,260	0B09932A	CE 22μ 16V (LN)
C161,261	0B05652A	CM 4700P 50V J
C162,262	0B09834A	CP 2200P 100V J
C163,263	0B09270A	CP 470P 100V J
C164,264	0B09322A	CP 330P 100V J
C304,305	0B09816A	CE 10μ 16V
	0B02348A	JP Connector 3P
	— Rec. Cal. —	
IC306	0B11027A	IC TC9145P
Q116,216	0B01872A	TR 2SC945L (P,Q)
D112,212	0B06398A	SiD 1SS176
VR102,103 202,203	0B32008A	Semi-fixed VR 10K
VR104,204	0B32009A	Semi-fixed VR 22K
R172,187 272,287	0B09705A	RK 15K 1/6W J
R173,273	0B09703A	RK 12K 1/6W J
R174,274	0B22326A	RM 6.98K 1/6W F
R175,275	0B09749A	RK 1M 1/6W J
R176,276	0B09709A	RK 22K 1/6W J
R177,277	0B09699A	RK 8.2K 1/6W J
R178,278	0B09677A	RK 1K 1/6W J
R179,279	0B09693A	RK 4.7K 1/6W J
R180,280	0B09697A	RK 6.8K 1/6W J
R182,282	0B09689A	RK 3.3K 1/6W J
R184,186 284,286	0B09701A	RK 10K 1/6W J
C149,249	0B09270A	CP 470P 100V J
C150,250	0B05681A	CM 0.01μ 50V J

Schematic Ref. No.	Part No.	Description
	— DC Supply —	
IC401	0B06216A	IC μPC4556C
Q401,403	0B01872A	TR 2SC945L (P,Q)
Q402,404	0B06013A	TR 2SA733 (P,Q)
Q407,408	0B06322A	TR 2SC2002 (K,L)
ZD401	0B12121A	ZD 5.1V RD5.1JSB2
ZD402	0B12122A	ZD 5.6V RD5.6JSB2
ZD403	0B12104A	ZD 15V RD15EB3
D401	0B06282A	Diode Bridge DBA10
D402,403	0B06109A	SiD GP08B
R401	0B22357A	RM 13.7K 1/6W F
R402	0B09203A	RM 10K 1/4W F
R403,404	0B22347A	RM 11K 1/6W F
R405,406	0B09695A	RK 5.6K 1/6W J
R407	0B09681A	RK 1.5K 1/6W J
R408,409	0B09749A	RK 1M 1/6W J
R410,411	0B09701A	RK 10K 1/6W J
R412,413	0B09693A	RK 4.7K 1/6W J
R414,415	0B09677A	RK 1K 1/6W J
R416	0B24007A	RF 22 2W J
R416	0B08715A	R Fuse 129
R417	0B24006A	RF 560 1W J
R418	0B09665A	RK 330 1/6W J
R419	0B05576A	RK 470 1/4W J
C401	0B40197A	CE 4700μ 25V
C402	0B01401A	CE 470μ 25V
C403	0B40196A	CE 10000μ 16V
C404	0B40180A	CE 2200μ 16V
C405,406	0B09393A	CC 68P 50V J
C407,408	0B05652A	CM 4700P 50V J
C409	0B40079A	CE 220μ 16V
C410	0B01403A	CE 47μ 16V
C411,412	0B01272A	CE 100μ 25V
	0E00857A	BT 3x6 ⊕ Binding (2)
	— Buffer —	
IC304,305	0B06146A	IC 4558DD
Q109,110 209,210	0B10039A	TR 2SC1740S
Q111,211	0B06013A	TR 2SA733 (P,Q)
D106,107 206,207	0B06398A	SiD 1SS176
L102,202	0B06690A	L-C Block (BLU)
L103,203	0B06676A	Inductor 36mH G
R141,241	0B09733A	RK 220K 1/6W J
R142,242	0B09653A	RK 100 1/6W J
R143,243	0B22426A	RM 53.6K 1/6W F
R145,245	0B22313A	RM 5.49K 1/6W F
R146,246	0B09421A	RM 2.67K 1/4W F
R147,149 247,249	0B09749A	RK 1M 1/6W J
R148,150 155,248 250,255	0B09701A	RK 10K 1/6W J
R151,251	0B22315A	RM 5.62K 1/6W F
R154,254	0B22396A	RM 30.1K 1/6W F
C127,227	0B09814A	CE 1μ 50V (LN)
C128,228	0B09932A	CE 22μ 16V (LN)
C129,229	0B09189A	CM 2700P 50V J
C130,230	0B05687A	CM 1200P 50V J
C147,247	0B09816A	CE 10μ 16V (LN)
C165,265	0B09409A	CP 1800P 100V G
	— Logic —	
IC601	0B11020A	IC TMP4315BP-1814
IC602	0B06317A	IC μPD4030BC
IC603	0B06214A	IC μPD4071BC
Q601,602 603,611 612,620 621,631	0B01872A	TR 2SC945L (P,Q)
Q604,605 613,614 623,625	0B06013A	TR 2SA733 (P,Q)
Q606,607 615,616 630	0B06322A	TR 2SC2002 (K,L)
Q608,609 617,618	0B06372A	TR 2SA953 (K,L)
Q610,619	0B06371A	TR 2SD1286 (L,K)
Q622,624 626	0B10007A	TR 2SC3399
Q627,628	0B10003A	TR 2SA1345

Schematic Ref. No.	Part No.	Description
Q629	0B10022A	FET 2SK246
D601-624	0B06398A	SiD 1SS176
L601	0B06689A	L-C Block (BLK)
VR601	0B32007A	Semi-fixed VR 470
R601	0B09693A	RK 4.7K 1/6W J
R602	0B09717A	RK 56K 1/6W J
R603,641 642,648 651	0B09713A	RK 33K 1/6W J
R604,640 643,644 647,650 656,660 665,670	0B09701A	RK 10K 1/6W J
R605,611 612,653 657,662 672	0B09725A	RK 100K 1/6W J
R606,622	0B09707A	RK 18K 1/6W J
R607,626	0B09695A	RK 5.6K 1/6W J
R608	0B09217A	RF 5.6 1/4W J
R609	0B09824A	R-Network 100Kx3
R610	0B05509A	RK 33K 1/4W J
R613,614 631,632 652,666	0B09677A	RK 1K 1/6W J
R615,616 633,634	0B09741A	RK 470K 1/6W J
R617,618	0B01679A	RK 100 1/4W J
R619	0B05836A	RK 2.7 1/4W J
R620	0B06706A	R Coil 3.5
R621	0B09831A	RF 22 1W J
R623	0B09715A	RK 39K 1/6W J
R624	0B09699A	RK 8.2K 1/6W J
R625	0B09711A	RK 27K 1/6W J
R627,638	0B09671A	RK 560 1/6W J
R628	0B09663A	RK 270 1/6W J
R629	0B09729A	RK 150K 1/6W J
R630,645	0B09717A	RK 47K 1/6W J
R635,636	0B01933A	RK 220 1/4W J
R637	0B24023A	R Fuse 1
R639	0B09681A	RK 1.5K 1/6W J
R646	0B09721A	RK 68K 1/6W J
R649	0B09689A	RK 3.3K 1/6W J
R654,669	0B09749A	RK 1M 1/6W J
R655	0B22456A	RM 97.6K 1/6W F
R658	0B09733A	RK 220K 1/6W J
R659	0B09735A	RK 270K 1/6W J
R661	0B09687A	RK 2.7K 1/6W J
R663,664 667,668	0B09737A	RK 330K 1/6W J
R671	0B09803A	R-Network 47Kx5
R673	0B09705A	RK 15K 1/6W J
R674	0B09697A	RK 6.8K 1/6W J
C601,611 615	0B01405A	CE 1μ 50V
C602	0B40011A	CE 33μ 16V
C603	0B40024A	CE 0.33μ 50V
C604	0B40079A	CE 220μ 16V
C605	0B01802A	CM 2200P 50V J
C606,613	0B09290A	CC 0.01μ 50V Z
C607	0B09817A	CE 33μ 10V (LN)
C608,616	0B09148A	CE 10μ 25V (LN)
C609,610	0B09292A	CC 0.1μ 50V Z
C612	0B40178A	CE 0.47μ 50V
C614	0B09332A	CE 2.2μ 50V (LN)
C617,618	0B09286A	CC 470P 50V K
CN4	0B02245A	9P-T Post
CN5	0B02243A	5P-T Post
CN6	0B08653A	3P-T Post
CN7	0B08185A	3P-T Post
	0B02348A	JP Connector 3P (1)
	0B02352A	JP Connector 7P (1)
	0B02354A	JP Connector 9P (1)
	0B02350A	JP Connector 5P (1)
	— Encoder —	
IC103,203	0B06382A	IC TEA0652
Q112,113 114,115 212,213 214,215	0B01872A	TR 2SC945L (P,Q)
D108-111 208-211	0B06398A	SiD 1SS176 (8)
R156,256	0B22351A	RM 12K 1/6W F
R157,257	0B22305A	RM 4.7K 1/6W F
R158,164 258,264	0B09701A	RK 10K 1/6W J

Schematic Ref. No.	Part No.	Description
R159,167 170,259	0B09717A	RK 47K 1/6W J
R160,260	0B22443A	RM 75K 1/6W F
R161,261	0B05794A	RK 680 1/4W J
R162,262	0B09683A	RK 1.8K 1/6W J
R163,165 171,263 265,271	0B09737A	RK 330K 1/6W J
R166,168 266,268	0B09739A	RK 390K 1/6W J
R169,269	0B09723A	RK 82K 1/6W J
R267,270	0B05641A	RK 47K 1/4W J
C131,231	0B09240A	C¼ 0.033μ 100V G
C132,232	0B05652A	CM 4700P 50V J
C133,233	0B09191A	CP 4700P 100V G
C134,234	0B09045A	CM 0.027μ 50V J
C135,140 235,240	0B09862A	CF 0.033μ 50V J
C136,138 236,238	0B09868A	CF 0.1μ 50V J
C137,237	0B09870A	CF 0.15μ 50V J
C139,239	0B09866A	CF 0.068μ 50V J
C141,142 241,242 306	0B01412A	CE 10μ 16V
C143,243	0B09872A	CF 0.22μ 50V J
C144,145 244,245	0B01400A	CE 100μ 16V
C146,246	0B09864A	CF 0.047μ 50V J
	— Decoder —	
IC101,201	0B11005A	IC NJM072DE
IC102,202	0B06382A	IC TEA0652
Q103-107 203-207	0B01872A	TR 2SC945L (P,Q) (10)
D101-105 201-205	0B06398A	SiD 1SS176 (10)
R112,212	0B05625A	RK 220K 1/4W J
R113,121 128,213 221,228	0B09701A	RK 10K 1/6W J
R114,214	0B09681A	RK 1.5K 1/6W J
R115,215	0B22248A	RM 1.54K 1/6W F
R116,216	0B22263A	RM 2.1K 1/6W F
R117,127 217,227	0B09749A	RK 1M 1/6W J
R118	0B01846A	RK 4.7K 1/4W J
R119,219	0B22351A	RM 12K 1/6W F
R120,220	0B22305A	RM 4.7K 1/6W F
R122,222	0B09717A	RK 47K 1/6W J
R123,223	0B22443A	RM 75K 1/6W F
R124,224	0B09685A	RK 2.2K 1/6W J
R125,225	0B09713A	RK 33K 1/6W J
R126,218 226	0B09693A	RK 4.7K 1/6W J
R129,135 229,235	0B09737A	RK 330K 1/6W J
R130,134 230,234	0B09739A	RK 390K 1/6W J
R131,133 231,233	0B05641A	RK 47K 1/4W J
R132,232	0B09723A	RK 82K 1/6W J
C107,109 207,209	0B09240A	CP 0.033μ 100V G
C108,115 117,208 215,217	0B09868A	CF 0.1μ 50V J
C110,210	0B05652A	CM 4700P 50V J
C111,211	0B09191A	CP 4700P 100V G
C112,212	0B09322A	CP 330P 100V J
C113,213	0B05681A	CM 0.01μ 50V J
C114,119 214,219	0B09862A	CF 0.033μ 50V J
C116,216	0B09870A	CF 0.15μ 50V J
C118,218	0B09866A	CF 0.068μ 50V J
C120,121 220,221	0B01412A	CE 10μ 16V
C122,222	0B09872A	CF 0.22μ 50V J
C123,124 223,224	0B01400A	CE 100μ 16V
C125,225	0B09864A	CF 0.047μ 50V J
C126,226	0B09816A	CE 10μ 16V (LN)
C166,266	0B09285A	CC 330P 50V K
	— Headphone Amp. —	
IC303	0B06370A	IC 4556D
Q108,208	0B06299A	TR 2SC2878
D115,215	0B06398A	SiD 1SS176
R136,236	0B09685A	RK 2.2K 1/6W J

Schematic Ref. No.	Part No.	Description
R137,138 237,238	0B09725A	RK 100K 1/6W J
R139,239	0B09210A	RF 33 1/4W J
R140,240	0B09693A	RK 4.7K 1/6W J
C302,303	0B01400A	CE 100μ 16V
	— Miscellaneous —	
	0B60097A	Main P.C.B.
	0B81010A	Dip Mate 3P (14)
	0B81002A	Dip Mate 2P (3)
	0B81011A	Dip Mate 4P (4)
	0B08584A	8P DIN Socket (1)
	0B82344A	SCN-S (1)
Q405	0B06452A	TR 2SD1406
Q406	0B06451A	TR 2SB1015
	0B90026A	Heat Sink (1)
	0E00507A	Nut Hex. M3 (2)
	0E00510A	M3x8 ⊕Pan (2A) (2)
	BA05353A-E	Main P.C.B. Ass'y BX-300E Serial Nos.: A12701001 - 02000 Content is the same as for BX-300 except for the following sections.
	— Rec. Eq. Amp. —	
IC307	0B06387A	IC 2043DD
Q117,118 217,218	0B06299A	TR 2SC2878
D113,114 213,214	0B06398A	SiD 1SS176
L104,204	0B51045A	L-C Block
L105,205	0B06705A	Trap Coil 1.05mH
R188,288	0B09707A	RK 18K 1/6W J
R189,191 289,291	0B09731A	RK 180K 1/6W J
R190,290	0B09677A	RK 1K 1/6W J
R192,292	0B09715A	RK 39K 1/6W J
R193,293	0B09691A	RK 3.9K 1/6W J
R194,294	0B09709A	RK 22K 1/6W J
R195,295	0B09673A	RK 680 1/6W J
R196,296	0B22247A	RM 1.5K 1/6W F
R197,297	0B09701A	RK 10K 1/6W J
R198,298	0B05936A	RK 10 1/4W J
C158,258	0B09814A	CE 1μ 50V (LN)
C159,259	0B01780A	CM 0.1μ 50V J
C160,260	0B09932A	CE 22μ 16V (LN)
C161,261	0B05652A	CM 4700P 50V J
C162,262	0B09834A	CP 2200P 100V J
C163,263	0B09270A	CP 470P 100V J
C164,264	0B09322A	CP 330P 100V J
C304,305	0B09816A	CE 10μ 16V
	0B02348A	JP Connector 3P
	— Rec. Cal. —	
IC306	0B11027A	IC TC9145P
Q116,216	0B01872A	TR 2SC945L (P,Q)
D112,212	0B06398A	SiD 1SS176
VR102,103 202,203	0B32008A	Semi-fixed VR 10K
VR104,204	0B32009A	Semi-fixed VR 22K
R172,187 272,287	0B09705A	RK 15K 1/6W J
R173,273	0B09703A	RK 12K 1/6W J
R174,274	0B22326A	RM 6.98K 1/6W F
R175,275	0B09749A	RK 1M 1/6W J
R176,276	0B09709A	RK 22K 1/6W J
R177,277	0B09699A	RK 8.2K 1/6W J
R178,278	0B09711A	RK 27K 1/6W J
R179,279	0B09693A	RK 4.7K 1/6W J
R180,280	0B09697A	RK 6.8K 1/6W J
R181,281	0B09713A	RK 33K 1/6W J
R182,282	0B09689A	RK 3.3K 1/6W J
R184,186 284,286	0B09701A	RK 10K 1/6W J
R185,285	0B09685A	RK 2.2K 1/6W J
C149,249	0B09270A	CP 470P 100V J
C150,250	0B05681A	CM 0.01μ 50V J
C152,252	0B05659A	CM 5600P 50V J
C153,155 253,255	0B05843A	CM 0.012μ 50V J
C156,256	0B05583A	CM 0.033μ 50V J

8. SCHEMATIC DIAGRAMS

8.1. IC Block Diagrams

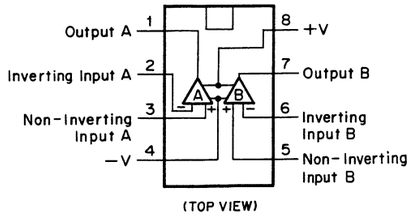


Fig. 8.1.1 Operational Amp. IC 4558DD, 072DE, 4556D, 4556C, 2043DD, 082D, TL092

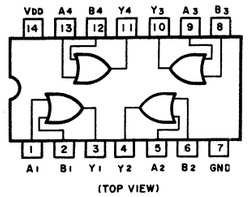


Fig. 8.1.2 OR Gate C-MOS IC μPD4071BC

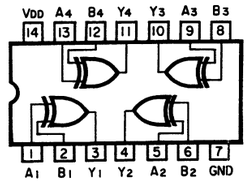


Fig. 8.1.3 Exclusive OR Gate C-MOS IC μPD4030BC

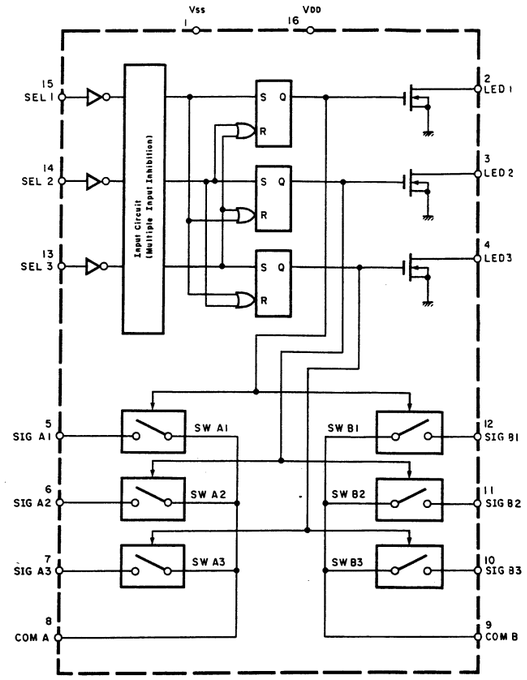


Fig. 8.1.4 Analog Switch Selector TC9145P

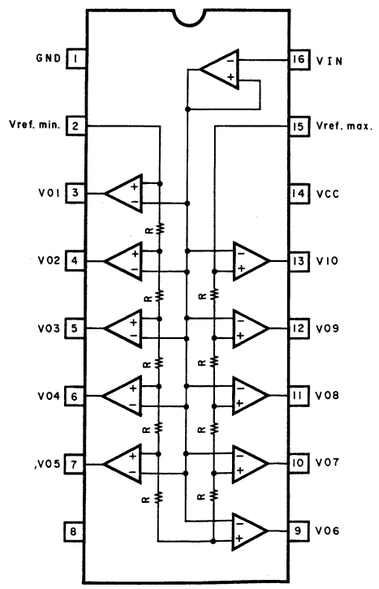
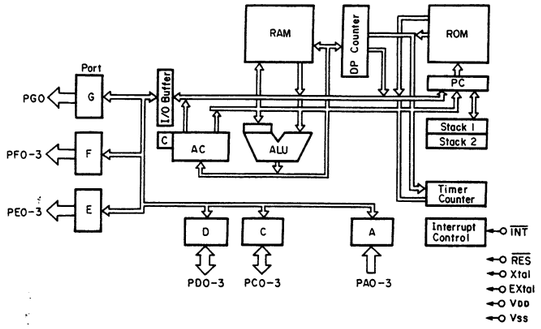


Fig. 8.1.5 Level Meter Driver TA7612AP



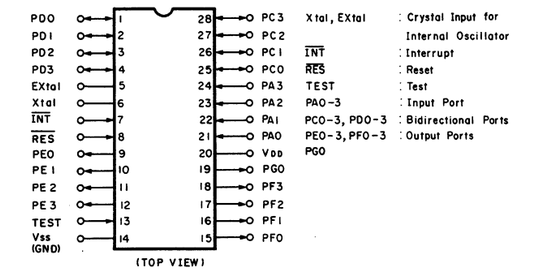
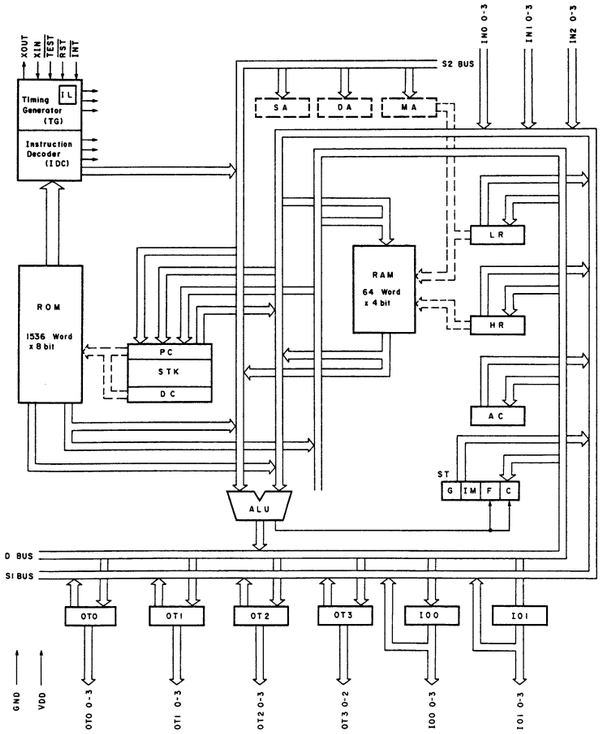
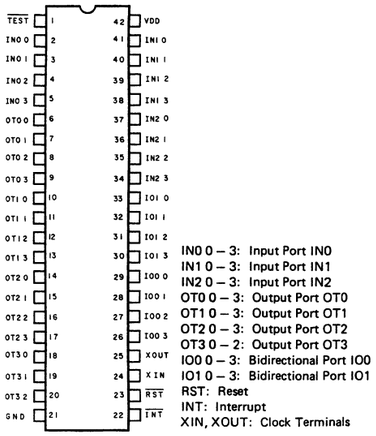


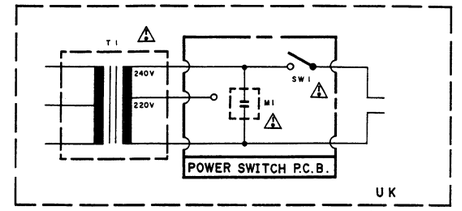
Fig. 8.1.6 4-Bit Micro-processor LM6416E-106

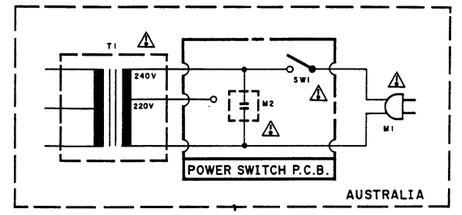


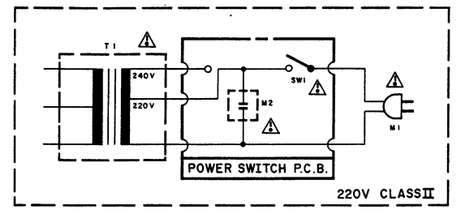


IN0 0 – 3: Input Port IN0
IN1 0 – 3: Input Port IN1
IN2 0 – 3: Input Port IN2
OT0 0 – 3: Output Port OT0
OT1 0 – 3: Output Port OT1
OT2 0 – 3: Output Port OT2
OT3 0 – 2: Output Port OT3
IO0 0 – 3: Bidirectional Port IO0
IO1 0 – 3: Bidirectional Port IO1
RST: Reset
INT: Interrupt
XIN, XOUT: Clock Terminals

Fig. 8.1.7 4-Bit Micro-processor TMP4315BP-1814







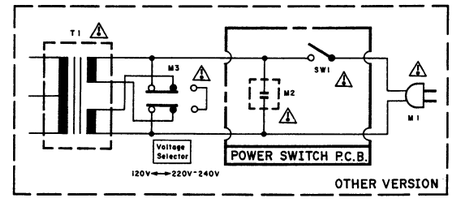
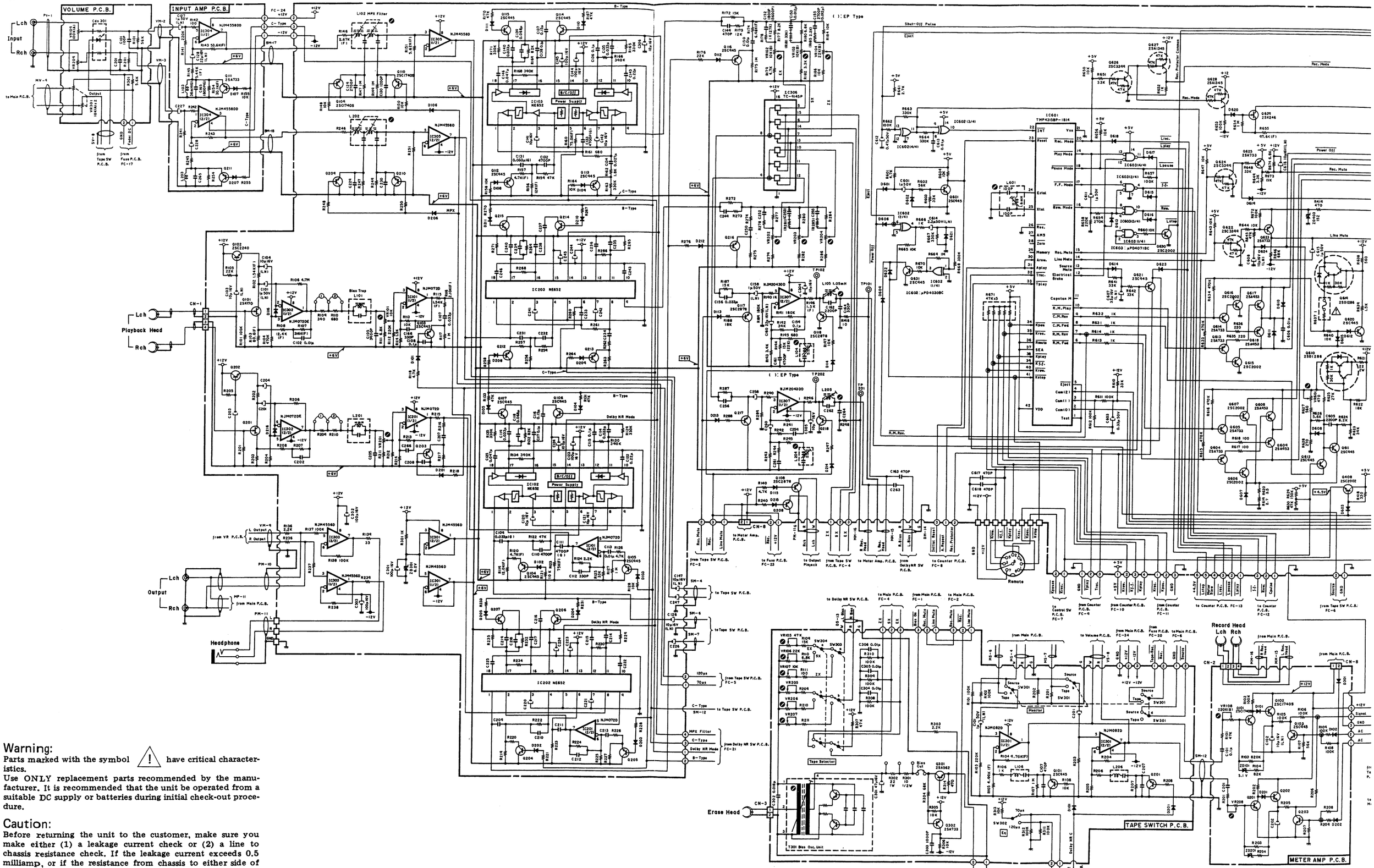


Fig. 8.2.1.1



Warning:

Parts marked with the symbol ⚠ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer. It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedure.

Caution:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamp, or if the resistance from chassis to either side of the power cord is less than 240 k ohms, the unit is defective. WARNING — DO NOT return the unit to the customer untill the problem is located and corrected.

Fig. 8.2.1.2 Serial No.: A12702001 —

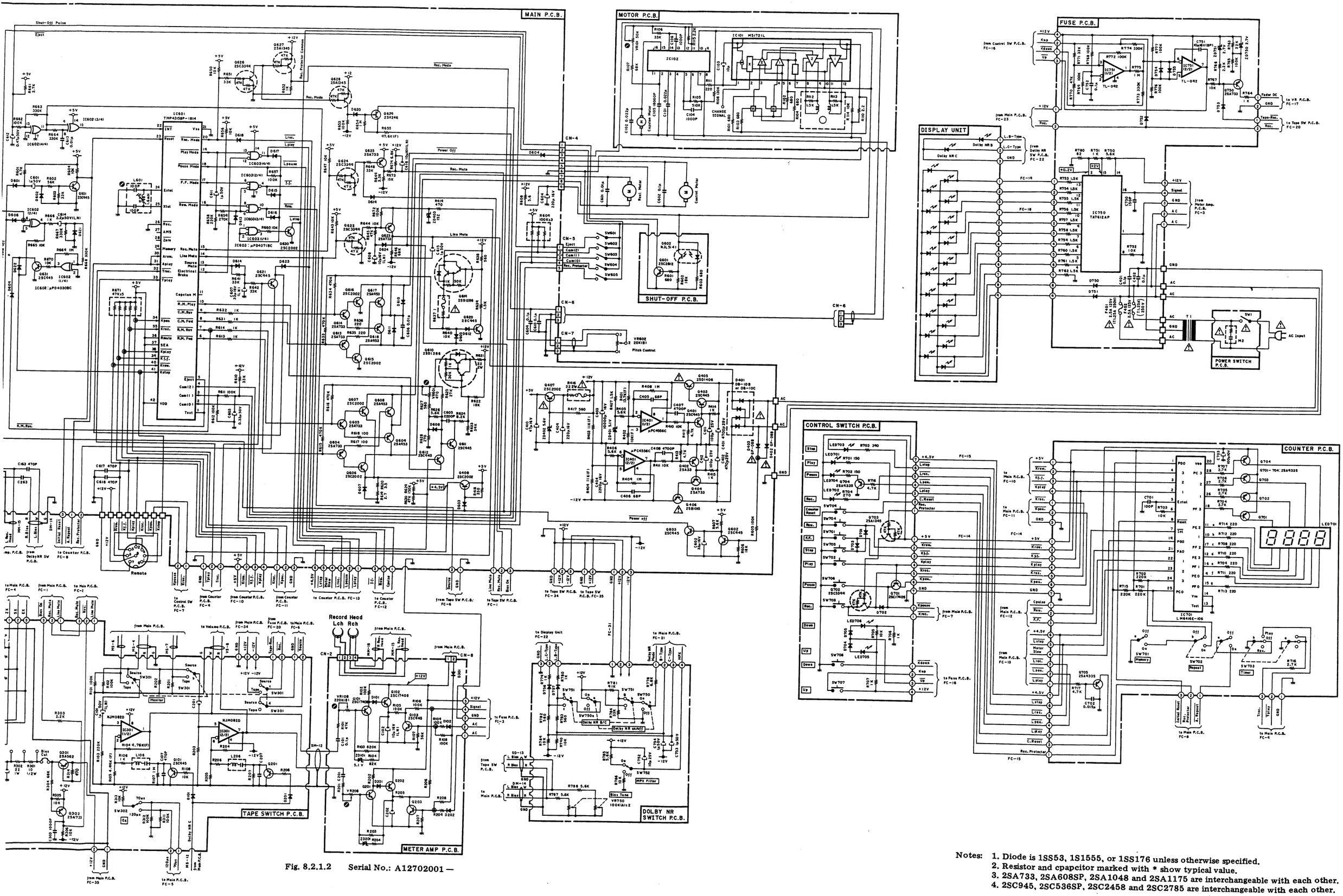


Fig. 8.2.1.2 Serial No.: A12702001 —

Notes:
1. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
2. Resistor and cpapcitor marked with * show typical value.
3. 2SA733, 2SA608SP, 2SA1048 and 2SA1175 are interchangeable with each other.
4. 2SC945, 2SC536SP, 2SC2458 and 2SC2785 are interchangeable with each other.

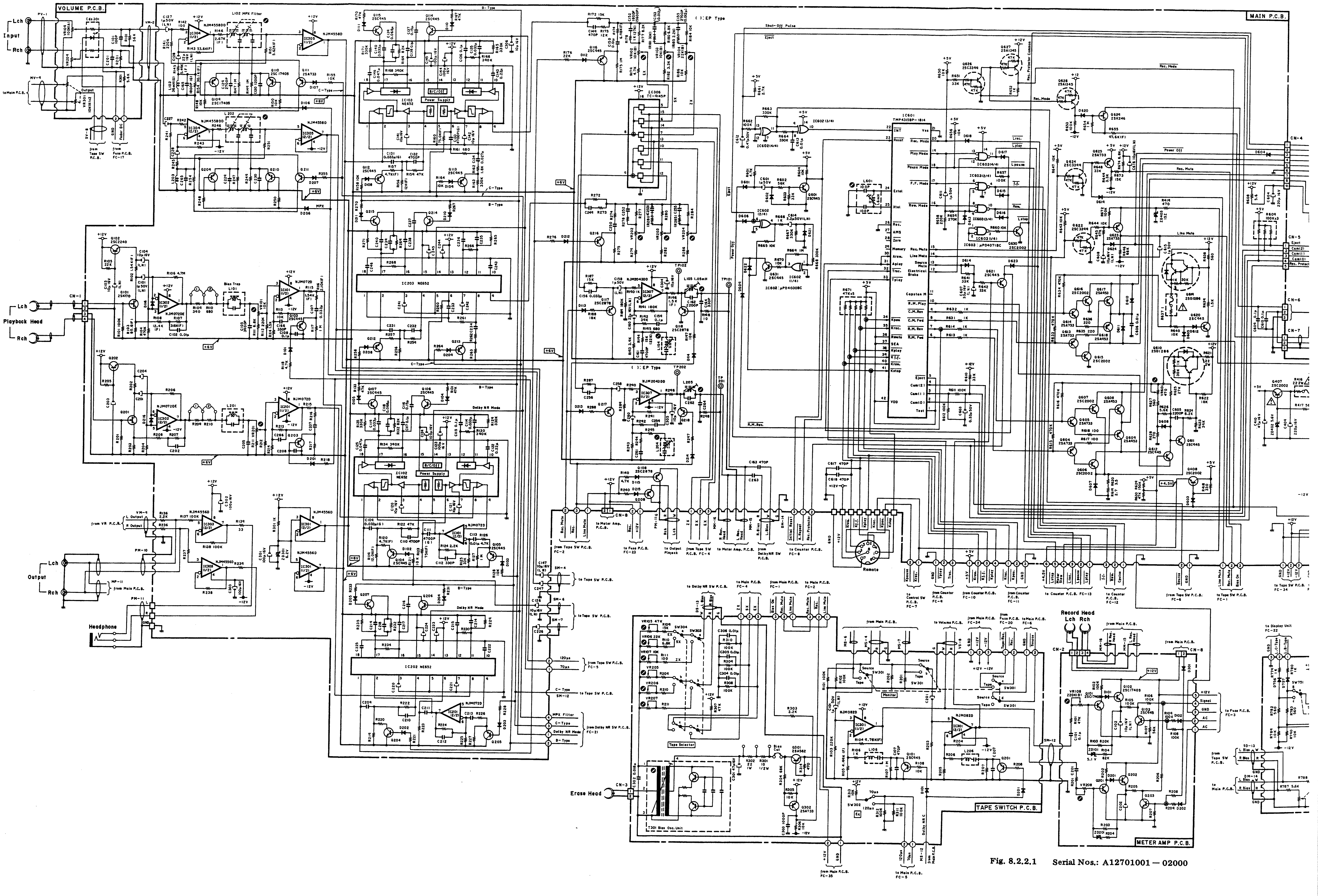

VOLUME P.C.B.
MAIN P.C.B.
TAPE SWITCH P.C.B.
METER AMP P.C.B.
Input
Lch
Rch
Output
Playback Head
Headphone
Erase Head
Record Head
Remote
Tape Selector
Monitor
T301 Bias Osc. Unit
L102 MPX Filter
IC601 TMP4315BP-1814
IC203 NE652
IC202 NE652
IC103 NE652
IC102 NE652
IC306 TC-9145P
( ): EP Type
Dolby NR Mode
B-Type
C-Type
MPX Filter

Fig. 8.2.2.1 Serial Nos.: A12701001 — 02000

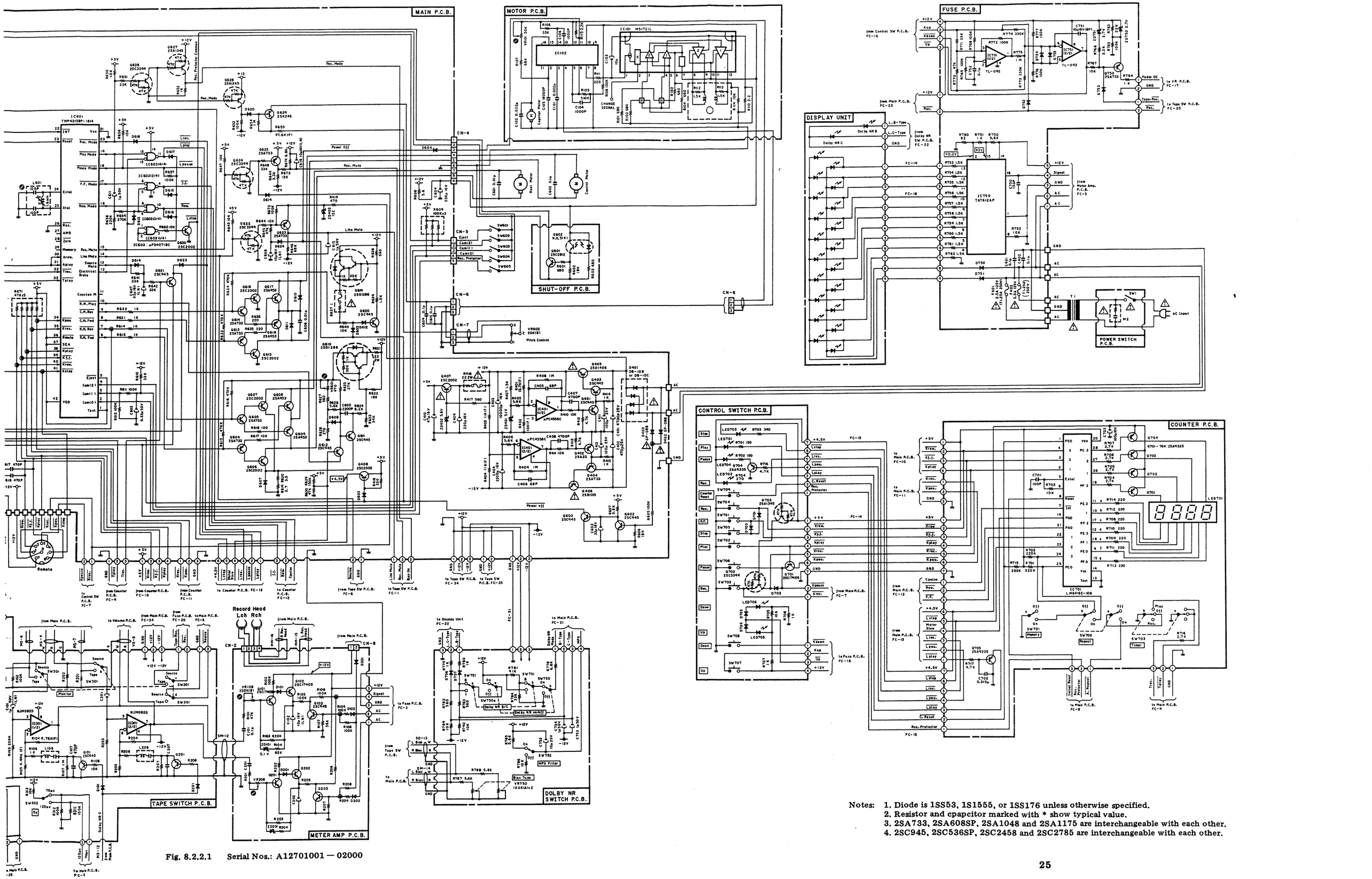
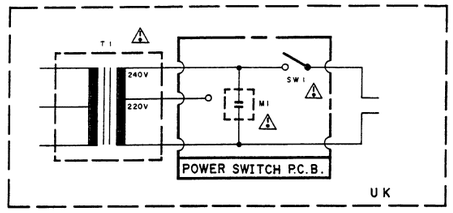
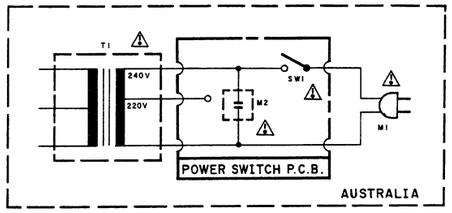
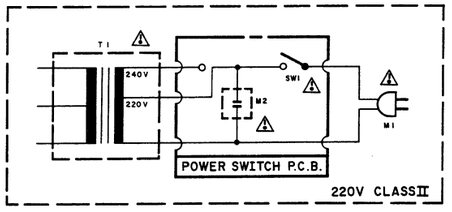


Fig. 8.2.2.1 Serial Nos.: A12701001 — 02000

Notes: 1. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
2. Resistor and cpapcitor marked with * show typical value.
3. 2SA733, 2SA608SP, 2SA1048 and 2SA1175 are interchangeable with each other.
4. 2SC945, 2SC536SP, 2SC2458 and 2SC2785 are interchangeable with each other.







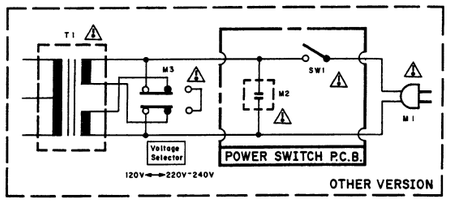


Fig. 8.2.2.2

Warning:

Parts marked with the symbol ⚠ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer. It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedure.

Caution:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamp, or if the resistance from chassis to either side of the power cord is less than 240 k ohms, the unit is defective. WARNING — DO NOT return the unit to the customer untill the problem is located and corrected.

9. TIMING CHART AND EQ. AMP. FREQUENCY RESPONSE

9.1. Timing Chart

(1) Overall Timing Chart

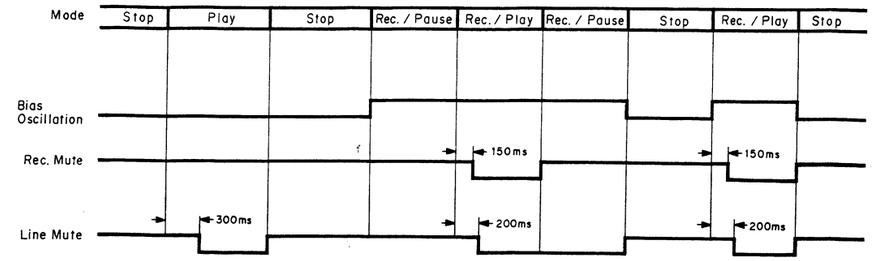


Fig. 9.1.1

(2) Mechanism Control Timing Chart

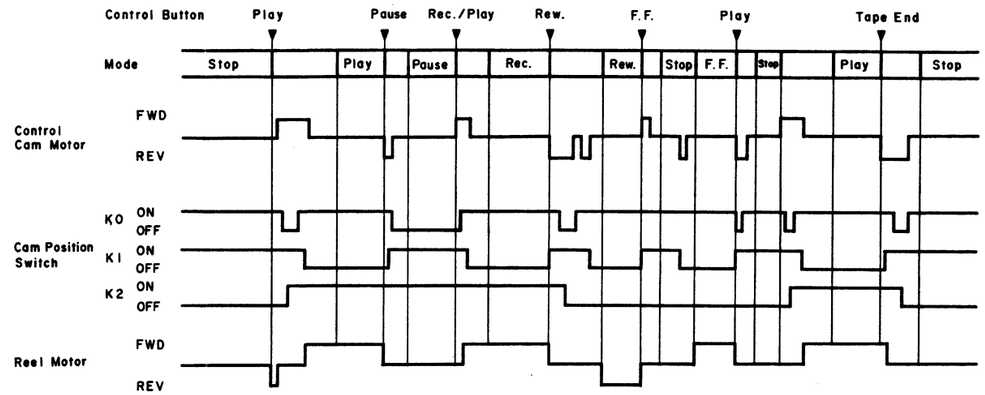


Fig. 9.1.2

9.2. Eq. Amp. Frequency Response

(1) Playback Frequency Response

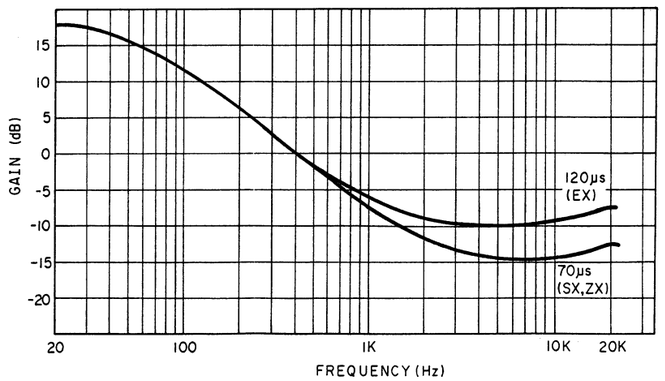


Fig. 9.2.1

(2) Record Current Frequency Response

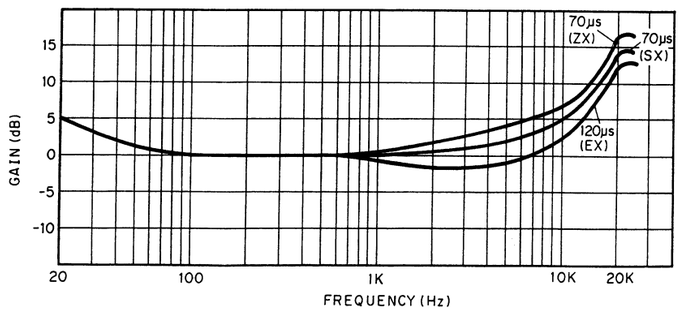
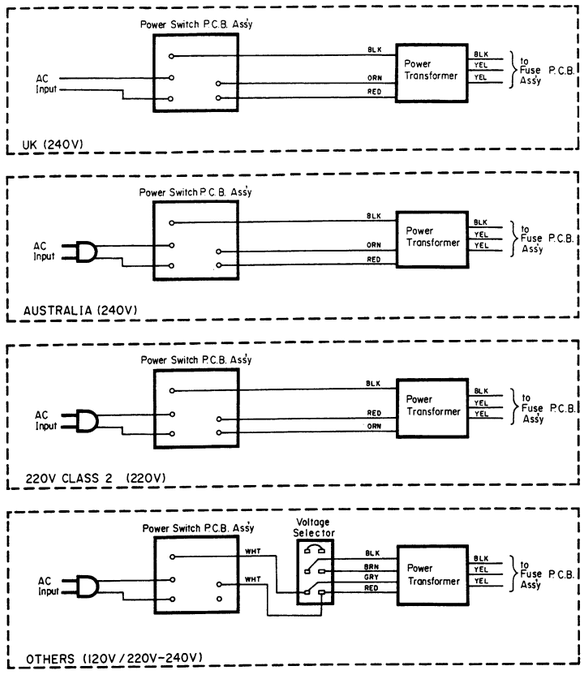


Fig. 9.2.2

10. WIRING DIAGRAM



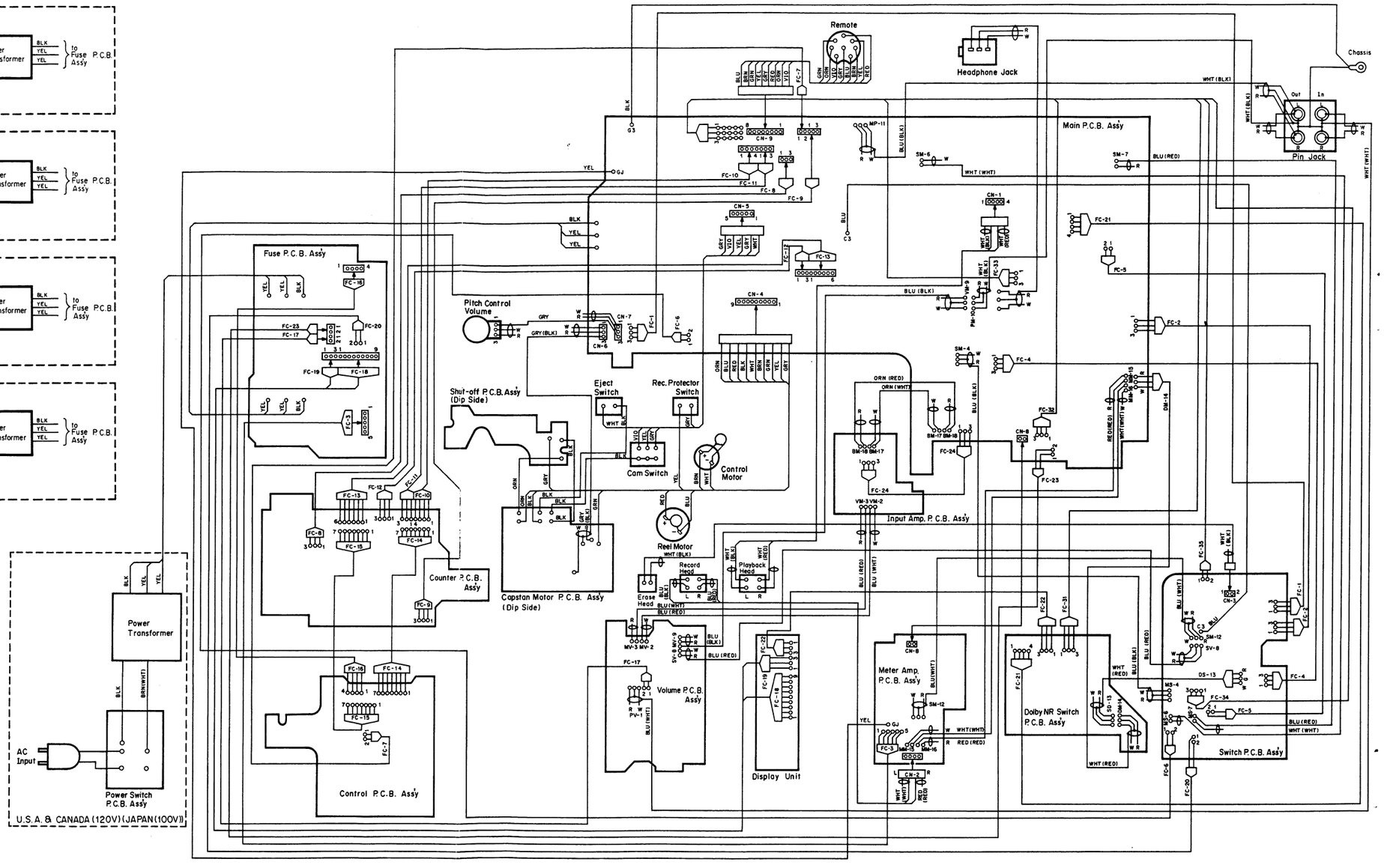


Fig. 10

Notes: 1 Table of wire colors

BRN — Brown	BLU — Blue
RED — Red	VIO — Violet
ORN — Orange	GRY — Gray
YEL — Yellow	WHT — White
GRN — Green	BLK — Black

2. Component side view of the P.C.B. is illustrated unless otherwise specified.
3. Wire tube color is shown in ( ).

11. BLOCK DIAGRAMS

11.1. Amplifier Section

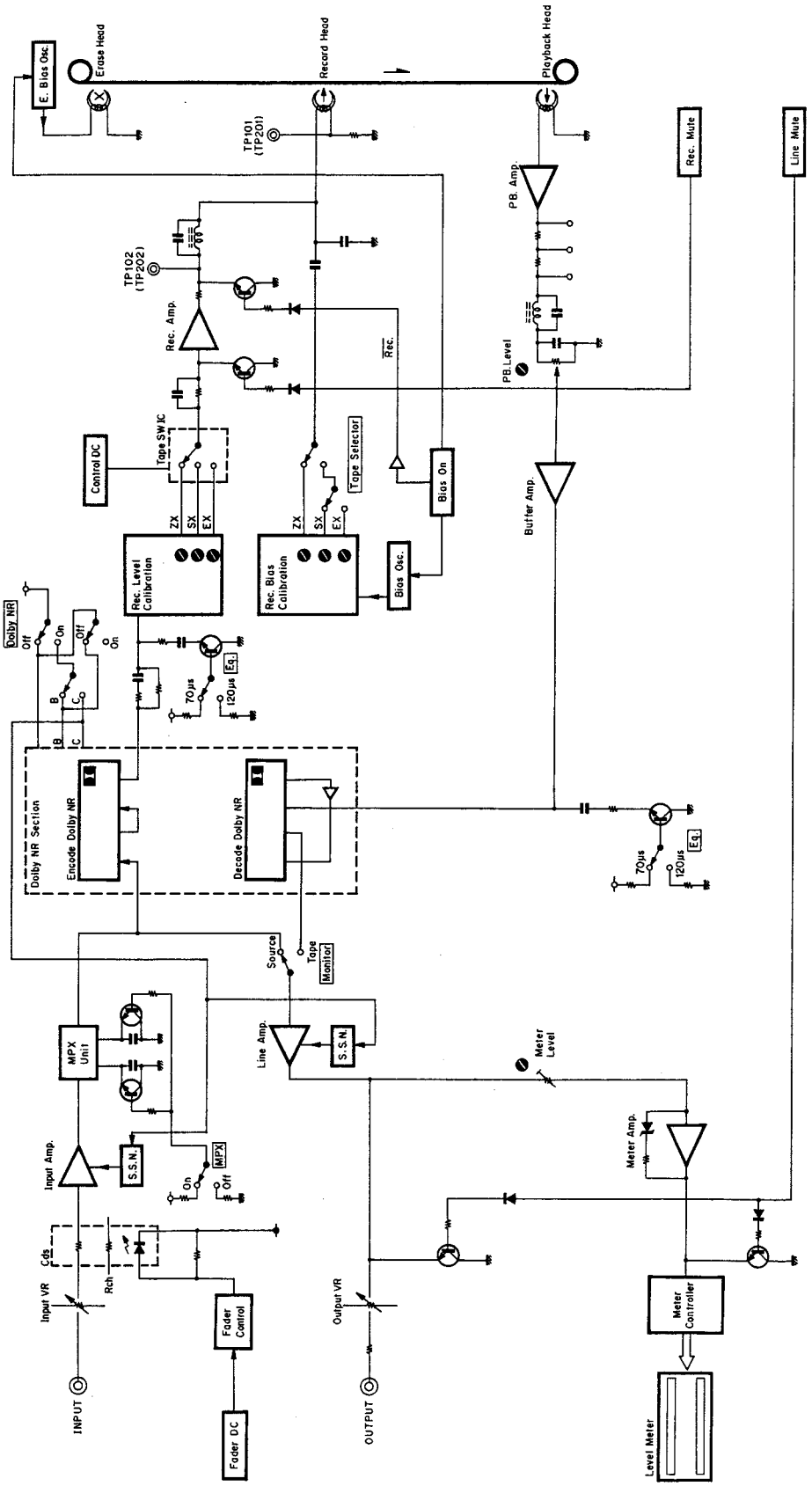


Fig. 11.1

11.2. Mechanism Control Section

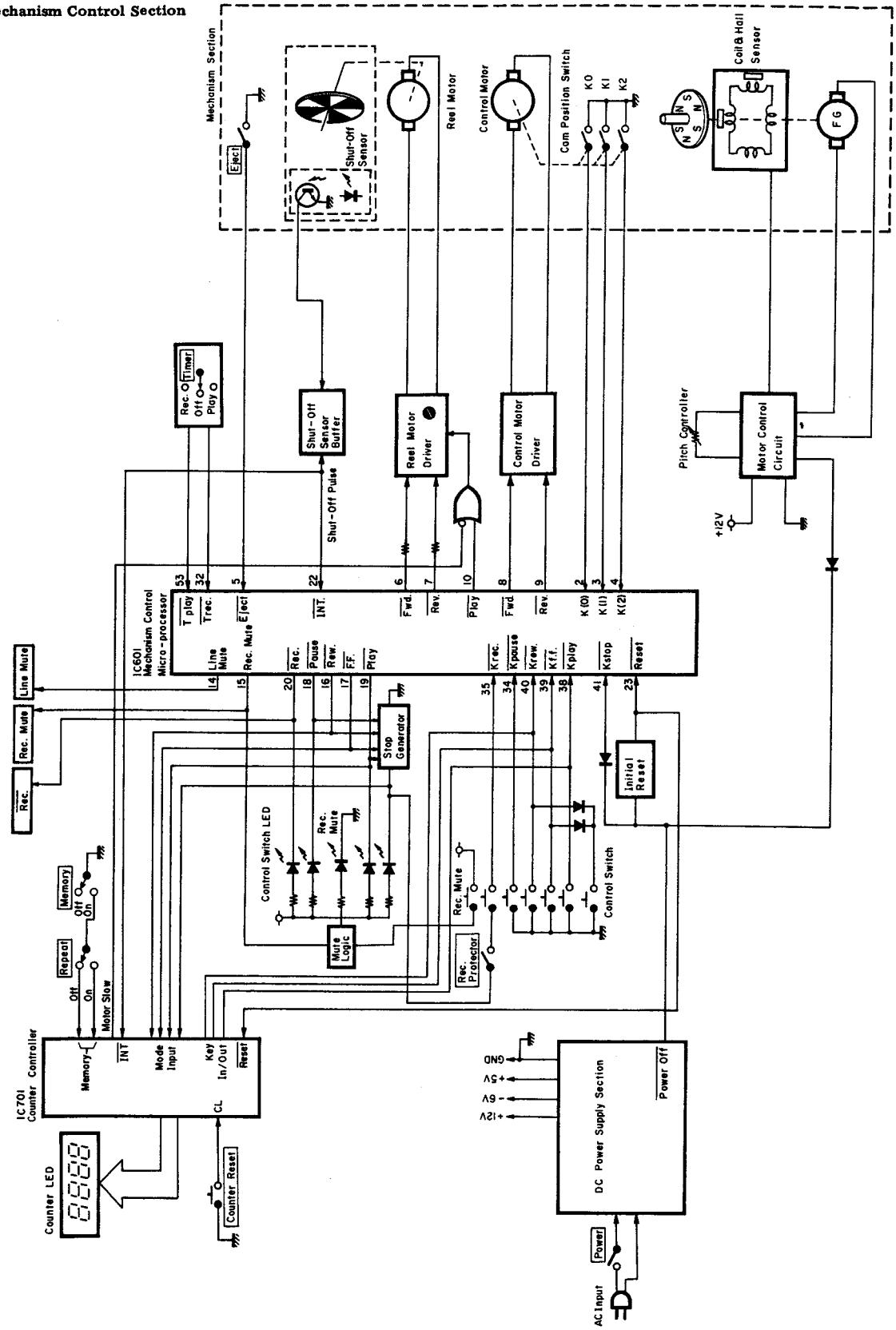


Fig. 11.2

12. SPECIFICATIONS

Track Configuration	4 tracks/2-channel stereo
Heads	3 (Erase Head x 1, Record Head x 1, Playback Head x 1)
Motors	<Tape Transport> FG Servo Brushless, Slotless, Coreless, DD Motor (Capstan Drive) x 1 DC Motor (Reel Drive) x 1 <Mechanism> DC Motor (Cam Drive) x 1
Power Source	100, 120, 120/220-240, 220 or 240 V AC, 50/60 Hz (According to country of sale)
Power Consumption	27 W max.
Tape Speed	1-7/8 ips. (4.8 cm/sec.) ±0.5%
Wow and Flutter	Less than ±0.048% WTD Peak Less than 0.027% WTD RMS
Frequency Response	20 Hz—20,000 Hz ±3 dB (recording level —20 dB)
Signal to Noise Ratio	Dolby C-Type NR on <70 μs, ZX tape> Better than 70 dB (400 Hz, 3% THD, IHF A-WTD RMS) Dolby B-Type NR on <70 μs, ZX tape> Better than 64 dB (400 Hz, 3% THD, IHF A-WTD RMS)
Total Harmonic Distortion	Less than 0.9% (400 Hz, 0 dB, ZX tape) Less than 1.0% (400 Hz, 0 dB, SX, EXII tape)
Erasure	Better than 60 dB (100 Hz, 0 dB)
Separation	Better than 36 dB (1 kHz, 0 dB)
Crosstalk	Better than 60 dB (1 kHz, 0 dB)
Bias Frequency	105 kHz
Input (Line)	50 mV/30 kΩ
Output (Line)	1.0 V (400 Hz, 0 dB, output level control at max.)/2.2 kΩ
(Headphones)	5 mW into 8 Ω (400 Hz, 0 dB, output level control at max.)
Fast Wind Time	Approx. 80 seconds (with C-60 cassette)
Dimensions	430 (W) x 100 (H) x 250 (D) millimeters 16-15/16 (W) x 3-15/16 (H) x 9-7/8 (D) inches
Approximate Weight	5.6 kg 12 lb. 6 oz

- Specifications and design are subject to change for further improvement without notice.
- Noise Reduction System manufactured under license from Dolby Laboratories Licensing Corporation.
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